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FIRST DRIVES

PORSCHE'S NEW TURBOCHARGED 911 CARRERA
MERCEDES-AMG C63 COUPE | INFINITI QX30

PLUS

SAM SMITH DRIVES THE GREATEST ALFA ROMEO OF ALL
LOST ART WITH PETER EGAN | RALLYING IN WALES

THE SAFETY STORY OF THE ALL-NEW
2016 CHEVROLET MALIBU

AS TOLD BY THE PEOPLE WHO ENGINEERED IT.

We sat down with active safety expert Raymond Kiefer and engineering safety specialist MaryAnn Beebe to talk about the innovation that went into creating the available active safety technologies in the all-new 2016 Malibu.





RAYMOND KIEFER

STAFF TECHNICAL FELLOW, ACTIVE SAFETY

What are some of the advanced active safety features engineered into the all-new 2016 Malibu?

Malibu offers a sophisticated range of radar, camera and ultrasonic crash-avoidance technologies to help drivers avoid crashes in everyday driving situations. In fact, we've engineered a number of available safety features, including Low Speed Front Automatic Braking, Lane Keep Assist with Lane Departure Warning and Rear Cross Traffic Alert. Before you make a lane change, the available Side Blind Zone Alert with Lane Change Alert feature lights up a side mirror icon if a vehicle is rapidly approaching or in your blind spot. Available Front Pedestrian Braking marks Chevrolet's first foray into helping drivers avoid pedestrians. An amber icon appears if a pedestrian is detected ahead and, if you're seconds away from a crash, red LED alerts flash on the windshield along with rapid beeping. If braking is delayed or if a pedestrian suddenly appears, the brakes are

automatically applied. This may not prevent the crash, but reducing crash impact speeds can make a real difference.

What's the difference between radar and camera technologies in active safety features?

Both technologies do an outstanding job of helping drivers increase awareness of what's going on around them. Radar is an active safety technology that improves vehicle detection range and works better in inclement weather conditions that may be a challenge for cameras. Camera technology works more like the way we see and avoid objects every day by using visual looming cues about the way objects grow in size as we approach. This technology is used in the available Low Speed Front Automatic Braking and available Front Pedestrian Braking features. Cameras can also show you hazards that you can't see directly with your eyes or mirrors.

“Teen Driver is a tool for parents to continue to teach safe driving habits to their young drivers.”

MaryAnn Beebe

ENGINEERING SPECIALIST, TEEN DRIVER



MARYANN BEEBE

ENGINEERING SPECIALIST, TEEN DRIVER

What is the Teen Driver¹ technology and how does it work?

Teen Driver is a tool for parents to continue to teach safe driving habits to their young drivers. It is a new feature that lets parents manage certain vehicle settings to encourage safer driving by their teenagers. Parents can set a volume limit for the radio and set a speed warning that will deliver an audible and visual warning when the vehicle exceeds the preset speed. When Teen Driver is active, the radio is muted if the driver or front passenger is not wearing a safety belt, and all equipped active safety systems are defaulted to “on.” Our goal was to use technology to help teens develop safe habits and, ultimately, be safer on the road.

How does the in-vehicle report feature work with other active safety features?

The Teen Driver in-vehicle report feature provides a snapshot of a teen's driving behavior. A parent can enter their Teen Driver PIN, and the report shows distance driven, maximum speed, number of over-speed warnings and how many times certain active safety features were engaged. For example, if the vehicle is equipped with available Forward Collision Alert or available Front Automatic Braking, the in-vehicle report will show how often these safety features were triggered. The in-vehicle report empowers teen drivers to show they've been driving responsibly, or see what driving skills they need to work on, and parents can continue to coach their new drivers. As a mom myself, it's rewarding to know that we're helping make a tangible difference. We want to set the industry standard for safety.



Safety features are no substitute for the driver's responsibility to operate the vehicle in a safe manner. The driver should remain attentive to traffic, surroundings and road conditions at all times. Read the vehicle Owner's Manual for more important safety information.

¹ Currently available on 2016 Malibu LT, Hybrid and Premier with the available 8-inch diagonal Chevrolet MyLink display.



As a naval aviator, test pilot and astronaut, Mark Kelly has been recognized for his courage and determination. A true pioneer, he appreciates the innovation, craftsmanship and utility of the Exospace B55, the first Breitling connected chronograph. This multifunction electronic instrument, powered by an exclusive COSC chronometer-certified caliber, reinvents the connected watch by dedicating it to the service of aviation professionals. Performance, functionality, and reliability. Welcome to the world of tomorrow's technology. Welcome to our world.

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A man with short dark hair, wearing a blue button-down shirt, is driving a vehicle through a rocky, dusty landscape. He is looking forward with a focused expression. The vehicle's steering wheel and dashboard are visible. The background shows a hilly, arid environment with some sparse vegetation. The overall tone is adventurous and rugged.

*CHASE DOWN YOUR PASSION.
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CHRIS BURKARD
ADVENTURE PHOTOGRAPHER

To capture moments few have witnessed,
you must venture where few have gone.

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challenging, but the rewards are worth it
for those willing to brave the journey.

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driving emotion

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THE ART OF PERFORMANCE

2016 Jaguar XF S vehicle shown. *Class is cars sold by luxury automobile brands and claim is based on total package of warranty, maintenance and other coverage programs. For complete



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**THE COMPARISON
SUPERSEDANS**

Detroit's Cadillac CTS-V and Dodge Charger SRT Hellcat take on the BMW M5 and the wide-open roads of the American West.

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**THE FIRST DRIVE
PORSCHE 911**

The 2017 Carrera gets a face-lift and turbochargers, but it's nothing to be nervous about. Hooray for iterative design.

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**THE INTERVIEW
GENE HAAS**

The American toolmaker took his talents to NASCAR and won. We catch up with him as he pivots toward Formula 1.

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Understanding the marque and the man: We get behind the wheel of Tazio Nuvolari's 1934 Alfa Romeo Tipo B P3.

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SUGAR RAY

Signature

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SPORT**
WITH MEMORY FOAM



THE TALE OF THE 2017 VOLT

AS TOLD FROM AN ENGINEERING AND DESIGN PERSPECTIVE.

We sat down with Executive Chief Engineer Pamela Fletcher and Executive Director of Global Design John Cafaro to talk about the engineering and design innovation that went into creating the revolutionary next-generation Volt.





PAMELA FLETCHER

CHEVROLET EXECUTIVE CHIEF ENGINEER
ELECTRIFIED VEHICLES

What are some of the technological breakthroughs in the next-generation Volt?

Customers tell us they love range, so we wanted to give them more range. We've fine-tuned the aerodynamics and drag coefficient, resulting in up to 53 miles of pure electric range¹; nearly 40 percent more than the first-generation Volt. The new Voltec propulsion system optimizes two new motors for prime power delivery, while increasing efficiency. Volt offers up to 420 miles of total range¹; without having to stop and plug in. The improvement in fuel economy and EV range will save time otherwise spent at the pump, as we expect owners to go over 1,000 miles between fill-ups by charging regularly¹, providing a more convenient driving experience for our customers.

What are the other differences between the first- and second-generation Volt?

The first-generation Volt was a breakthrough vehicle, and the second-generation Volt takes that idea even further. Volt is the no-compromise electric vehicle with a gas-powered generator on board to take you hundreds more miles beyond its battery range. We worked around every system of the car to make it more efficient and the new vehicle is over 230 pounds lighter than its predecessor. We also have a new battery cell that delivers 20 percent more energy by volume². It's more energy dense but weighs 21 pounds less than the Gen I Volt with a lot more capacity.

*“Customers tell us they love range,
so we wanted to give them more range.”*

Pamela Fletcher

CHEVROLET EXECUTIVE CHIEF ENGINEER, ELECTRIFIED VEHICLES



JOHN CAFARO

CHEVROLET EXECUTIVE DIRECTOR
GLOBAL DESIGN

How did you approach exterior design for the next-generation Volt?

When we started putting pencil to paper on the Volt, we wanted something exciting-looking. We knew it was going to have four doors, but we really wanted something sleek with a coupe aesthetic. The biggest change from Gen I to Gen II from an exterior standpoint is that the car's just got a lot more attitude. We spent 340 hours in the wind tunnel, validating and tuning the exterior surface like you might tune a guitar, dialing in the notes just perfectly so they sound right. There is this hint of something beautiful and functional about the car's new shape. We made the next-generation Volt more dynamic and more gestured. It's eco with an attitude.

What interior enhancements have you designed into the vehicle?

We added richer materials throughout the interior, so it's more sculpted, swept and has a lot more movement. We also made the controls more intuitive and added advanced phone integration technology. Apple CarPlay^{TM3} compatibility allows you to conveniently access select iPhone[®] apps on the Chevrolet MyLink touch-screen.⁴ And new for 2017, we will provide Android Auto^{TM3} compatibility, so you can access select phone apps in a smart, simple way. Chevrolet design has evolved through the years and we're looking at things totally differently. We're taking some risks along the way, but that's what makes life exciting.



¹ EPA-estimated 53-mile EV range based on 106 MPGe combined city/highway (electric); 367-mile extended range based on 42 MPG combined city/highway (gas). Actual range varies with conditions. ² Comparison to the initial 2011 Volt battery cell. ³ Vehicle user interfaces are products of Apple and Google and their terms and privacy statements apply. Requires compatible smartphone and data plan rates apply. Android Auto is a trademark of Google Inc. ⁴ Full functionality requires compatible Bluetooth and smartphone, and USB connectivity for some devices.





GO

CAPTURING THE LIFE AT SPEED

WALES RALLY GREAT BRITAIN

The 2015 FIA World Rally Championship season culminated with the Wales Rally GB: Nineteen punishing stages of mud and mayhem across three days and 191 tangled miles. Seventy-eight teams of two men in a car versus the clock and the elements—maximum attack.

The British have long embraced rallying and have hosted this race since the early 1930s, but it wasn't until Colin McRae's heroic 1995 run in a little blue Subaru that a British driver brought home the WRC championship. The victory made McRae a folk hero and put Subaru on the map.

To mark the 20th anniversary of McRae's win, Subaru sent seven-time Rally America champion David Higgins, an Isle of Man native who idolized McRae, back home to Britain to compete in a new production-class WRX STI. *R&T* art director **MATT TIERNEY** grabbed his camera, headed for Wales, and checked "rally" off his bucket list.

The Ford Fiesta of Max Vatanen takes flight on the morning of day one. Vatanen would go on to finish the rally second in his class.

CANON EOS-1D X, 70–200MM LENS @ 200MM, ISO 100, 1/200 SEC @ f/3.5



CANON EOS-1D X, 16-35MM LENS @ 25MM, ISO 100, 1/160 SEC @ f/5.6

Go

DAY ONE | SWEET LAMB

Much of the Wales Rally's nearly 200 miles winds through dense forests, limiting fans to watching the event one corner at a time. At Sweet Lamb, however, most of the stage's action takes place within a breathtaking natural stadium of pastureland.

From atop the hill, spectators get a front-row seat as cars hurtle flat out down a 250-foot descent into the valley. You can track drivers visually all the way to the bottom before they climb the other side toward the next stage. French duo Sébastien Ogier and Julien Ingrassia (above) piloted their Volkswagen Polo R WRC to overall victory.

Down in "the bowl," with its trademark water crossing, mud chicane, and punishing finish-line jump, cars like this face-planting Škoda Fabia R5 (right) shrugged off abuse that would have decimated an Indy car.



CANON EOS-1D X,
70-200MM LENS @ 110MM,
ISO 125, 1/640 SEC @ f/3.2

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DAY TWO | THE ENCHANTED FOREST

In the shadow of the mountains of Snowdonia, the forest stage at Dyfi demands a long walk to one of the isolated spectator areas. It's worth every trudging step. The thick canopy provides shelter from the wind and rain, and the moss-covered, old-growth forest floor feels like it's straight out of a fairy tale—one that includes boisterous Germans handing out bratwurst cooked on a grill that they hauled into the woods.

CANON EOS-6D, 16-35MM LENS @ 16MM, ISO 400, 1/50 SEC @ f/2.8





Go

After a full day of racing across seven brutal stages, crews had only 30 minutes in the Deeside service park to make repairs and ready the cars for two nighttime stages. An eternity compared with a NASCAR pit stop, a half hour is often barely enough time to undo the punishment of a day's worth of rallying.

Higgins and his Subaru (above) dominated the production class, finishing 20th overall in what was essentially a lightly modified showroom car—with little more than safety gear and skid plates added.

CANON EOS-1D X, 16-35MM LENS @ 35MM, ISO 100, 1/25 SEC @ f/2.8



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WRC rules mandate that only the driver and co-driver may work on a car during a racing stage, using tools and parts carried onboard. So if an encounter with a hay bale demands a bit of body work . . . best to just rip off the offending panel and keep going.

CANON EOS-1D X, 70-200MM LENS @ 70MM, ISO 125, 1/80 SEC @ f/2.8



Go

DAY THREE | THE MONSOON

"Is that where you're going to stand?"

That's what the marshal said as I took my position, trying in vain to shield my camera from the rain blown sideways by 60-mph wind gusts. "Because sometimes," he added, "drivers lose it coming over this crest. That wire fence stops sheep. Not cars."

Sure enough, the very next car over the crest lost it, bouncing from one tire to another across the narrow mud path, the far wheels flirting with the ditch. I held the shutter down and fired a dozen or so shots as driver Jari-Matti Latvala somehow wrested the VW Polo R WRC under control and flew past.

Twelve frames equals one second—I wouldn't have made it very far if I had needed to turn and run. Glancing at the camera's screen, I was thrilled—a shot well worth the scare. I then took several steps back.

CANON EOS-1D X, 70-200MM LENS @ 100MM, ISO 1250, 1/800 SEC @ f/3.2



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— Tommy Milner

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PROUD PARTNER

Letters

READERS: TESLA'S NOT IN TROUBLE AND THE 911 GTS IS NO AMG GT S.

Dear R&T,

Bob Lutz obviously has a vested interest in seeing Tesla fail [Go Lutz Yourself, November]. Tesla is out to change the entire model for transportation, from acquisition to usage and servicing, but Lutz wants it to just build a slightly better Chevy Volt.

PETER WALLACK, SUNNYVALE, CALIFORNIA

Lutz's design recommendation to Tesla sounds a lot like the new Volt: "An entry-level model with a cheaper, range-extended hybrid driveline. . . . Something that's electric most of the time, say 50 or 60 miles, but can carry on under gasoline power." For most people, that's a more realistic choice than an electric-only vehicle at any price.

ALFRED CAMPANELLA
CHERRY HILL, NEW JERSEY

I strongly agree that Tesla is in trouble if it doesn't do anything amid lower gas prices. The new Model X crossover, although innovative, is not going to save the company.

ANTHONY JAKUBOSKI
HILLSBOROUGH, NEW JERSEY

I would never bet against Elon Musk.

BRANDON SHAKLEY
AUSTIN, TEXAS

GTS VS. GT S VS. 928

The Mercedes-AMG GT S was much quicker in a straight line, ran the track faster, and has a better interior and control systems than the Porsche 911 Carrera GTS ["Spoils of Stuttgart"]. Jack Baruth's decision seemed to be based on the fact that he was more comfortable driving Porsches. At least Mercedes is producing new cars, rather than making essentially the same car since 1963.

RAY PIANTANIDA
NEWPORT BEACH, CALIFORNIA

Let's get real here: Porsche makes something called a 911 Turbo. Comparable price to the AMG GT S? Check. PDK auto? Check. Close in horsepower? Check. This would make for a fair fight based on cost and specs. The only problem? Nothing much to talk about in an article. The 911 still crushes anything Mercedes puts out there.

TRACY ELLIS
EUGENE, OREGON

Ellis, how else could we concoct a GTS vs. GT S battle? With a 1986 Corolla?

Baruth gave Mercedes-AMG a big slap in the face, comparing its GT S with the Porsche 928.

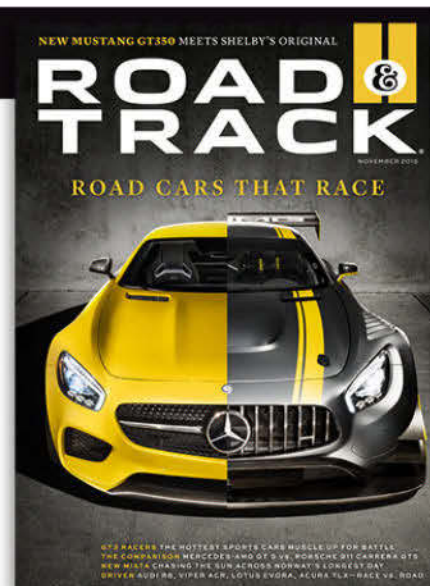
A. C. BUCK
HARRISBURG, PENNSYLVANIA

The Mercedes-AMG GT S is what the Porsche 928 S always wished it could be—a highfalutin luxury-sport GT with a rock-solid, high-revving, high-output 4.0-liter V-8. The 928 always had problems; AMG just took Porsche's idea and perfected it. Good for the boys over at Stuttgart . . . um, I mean . . . Stuttgart?

PAUL LORENC
PISCATAWAY, NEW JERSEY

Thank you, Jack Baruth. I agonized about trading out of my 1991 911 Turbo for a 2016 911 GTS. Turns out the 911 GTS is still an enthusiast's sports car.

DAVID BRAND
SYOSSET, NEW YORK



NIPPING NOSES IN NORWAY

Zach Bowman's beautiful screenplay and Tom Salt's talented lens ["Infinite Wonder"] have me checking my available paid time off for a fall drive. My Wrangler isn't quite a Miata, but it has a soft top and a six-speed manual. These guys make me want to throw the top back, crank the heater, and find new roads. Hopefully one with "a tangle of perfections."

AL ABDULLAH
ST. LOUIS, MISSOURI

My thanks to writer Bowman and photographer Salt for a great article. It made me feel like I was along for the ride, taking in the remarkable scenery and smelling the fresh Norwegian air with just a faint nip to the nose that makes drop-top driving a blast. If I didn't have an S2000, I'd be waiting in line for a new MX-5 to enjoy the views.

RUSS SEUFFERT
SPRING LAKE HEIGHTS, NEW JERSEY





EDITOR'S LETTER BY LARRY WEBSTER

THE LAST THING I NEEDED was a 51-year-old Mustang. As much as I'd fallen for editor-at-large Sam Smith's 1965 GT350 clone, when he told me he was selling, I simply didn't know what I would do with it. The exhaust kickers vibrated my innards so violently, I lost my breath. The manual brakes required a huge shove. Air-conditioning? Not a chance. The charm, of course, was in the car's incivility, but what does a guy with a wife and three kids do with such a machine of menace? Road trips? Ice-cream runs? And I already have my Formula Ford to play with. Even though Smith graciously gave me right of first refusal, I was inclined to pass.

But then I casually mentioned the car around the dinner table that night. My seven-year-old son, who is coincidentally also named Sam, shouted, "We're buying Sam-from-the-office's Mustang?!?!?" Then he did an end-zone celebration on the floor. He had just lost his mind. My wife and I exchanged knowing glances: Here was a chance for an experience that we probably shouldn't pass up.

My kid Sam, unlike his two older siblings, has the car gene. His enthusiasm sometimes shocks even me. He had not seen Smith's Mustang since he was five. He talked about it incessantly for months, and our hallways reverberated with him imitating the sound of its 302 V-8. Then he seemed to forget about it. In my experience, kids' obsessions are fleeting. Smith had moved the car to a shop in Louisville, Kentucky, near his folks and out of sight. But clearly young Sam hadn't forgotten about the Ford, and the glee he expressed over the idea of driving the car from Kentucky to Ann Arbor sealed the deal. How often do you get to share such a passion with your kid?

We flew to Louisville on an unseasonably warm and sunny Saturday. I got weak-kneed when I saw the Stang again—the riveted side panels, the chrome window frames, and the shifter

poking from the floor have that effect. Sam hopped in and put on the ear protectors I'd brought along. We took the scenic route, heading north on Route 42, our elbows hanging out the open windows. Every once in a while, I'd look over and check on Sam. Surely my little boy, who is incapable of sitting still, would get fussy after a few hours riding in a car without an iPad to watch. Nope. He just gave me the thumbs-up. We stopped overnight to break up the seven-hour trip. His enthusiasm never wavered, nor did he forget my promise that we'd do a burn-out when we made it home.

Everyone has their own theories about parenting. I think that for a boy, making a special memory with his old man can be an armor against the inevitable tough times and help carry us through the teenage years. Call it vehicular imprinting, if there is such a thing. The Mustang did its job. Thanks, Sam. ■

For a boy, making a memory with his old man can be an armor against the inevitable tough times and help carry us through the teenage years.

Letters CONT.

While Colin Comer raves about the 3650-pound Mustang GT350R in your November issue—it's a meticulously engineered device—Bowman captures the essence of driving with the 2313-pound Miata. I'll pass on the device and its algorithms. The MX-5 is proof that every other car sold today needs to go on a diet. Less is more!

PETER MADISON
PRINCETON, NEW JERSEY

LOW ON LOTUS

After reading the specifications of the new Lotus Evora 400 ["Lighter, Faster, Better"], I thought of my 2005 Corvette. The C6 weighs 100 pounds more, has 100 lb-ft more torque, and has the same 0-60 time and top speed. I'm driving it now for under \$20,000. Unless you're totally enamored of the Lotus brand, Colin Chapman, or Jim Clark, why would you purchase a \$90,000 car with yesterday's performance?

WILLIAM NICHOLS
WHITEHOUSE, OHIO

WELL SAID, CHRISTIAN

Skimming through the November issue, I'm troubled by yet another request from a fellow reader for more "affordable" cars to be featured. I'd like nothing of the sort. How dare you ask for such a thing, anyway? Do you prefer your coffee lukewarm? Your clothes from Walmart? Your dates to end in a kiss on the cheek? I think not! I request *more* supercars! Perhaps *only* supercars! Please never stop featuring the heart and soul of what makes automotive passion possible. I fell in love with supercars as a young boy and nothing has changed since. Thank you, *Road & Track*, for the supercars, for man cannot survive on front-wheel drive and four cylinders alone.

CHRISTIAN BULLARD
ST. LOUIS, MISSOURI

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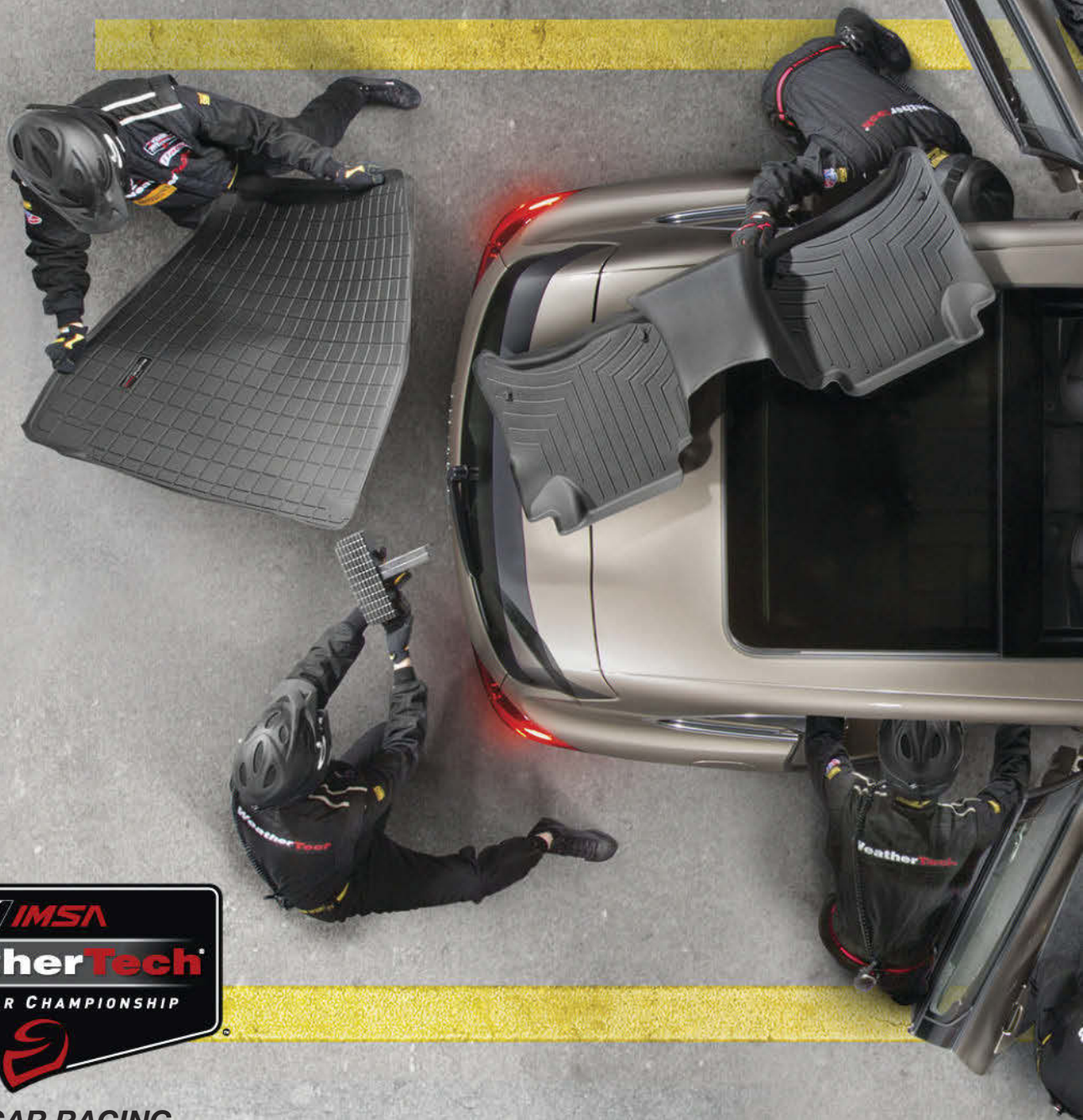


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REDX



Seat, Time

ENDURANCE RACING WITH SMART PEOPLE—AND US.

SMITHOLOGY BY SAM SMITH

THE LICENSE PLATE on the Mazda read “FUJIMO.” Standing in the paddock at Mid-Ohio, I had no idea what this meant, so I pulled out my phone and Googled. Turns out it’s an old military acronym. One that, like so many, requires an F-bomb: “F*** You, Jack, I’m Moving Out.”

I looked up at the car. It fit.

The Mazda was black, a multitime NASA winner, a second-generation RX-7 with its roll cage and interior painted white. It looked like Death’s tuxedo. An ancient GM 3800 V-6 sat under the hood, its water pump even with the shock towers. There was enough room to lean in and stick your head in front of the motor, so I did. I also burned my nose on the radiator because, like young children and celebrity stalkers, I should apparently not go near hot things without adult supervision.

All of this was last fall. I went to Mid-Ohio to drive the Mazda with American Endurance Racing. AER specializes in amateur enduros—long road races designed to break cars and people. You strap in for hours at a time, pushing the limits of fuel capacity and that floppy Egg McMuffin you had for breakfast, attempting to rip off consistent laps in 100-mph traffic without grinding your brain to mush. There are pit stops. You give the car to another driver, rest, then get back in.

Most people drive one car in an enduro. Using your rest time to race a second is less than smart. Three cars is generally seen as epically dumb.

I went for three.

AER is run by a handful of guys from the East Coast. One, Seth Siegel, told me they decided to start a race series over beer one night, a lark. It kicked off in 2014. Some 700 drivers have since taken a flag with them.

“We wanted a friendly middle ground between ChumpCar and pro racing,” Seth said. (Note that he excluded the big dogs of American club racing, NASA and the SCCA, which are about as friendly as a Disposall with your arm caught in it.) AER’s big idea was running real race cars on street tires, to reduce cost. Also shockingly low entry fees and an effort to vet drivers before taking their money.

It worked—tires that slide and last forever, close racing with trustable traffic. Mid-Ohio attracted a host of cars, from old Spec Miatas that smelled like feet to a pair of ex-IMSA Porsches driven by pros Will and Wayne Nonnamaker. Last summer, *R&T* contributor Jack Baruth emailed and invited me to drive the RX-7. He was sharing the car with its builder, a quiet Ohio man named Matt Johnston. (Matt’s most infamous project: shoving a Roush Yates NASCAR V-8 into another

RX-7. Matt’s nickname: Tin Man, because he’s a sheetmetal worker. Matt himself: mad genius.)

Next, one of the magazine’s web editors, Travis Okulski, helped me rent a seat in a 1993 BMW 325is. And the week before the race, I discovered that editor Webster and associate publisher Jason Nikic were running a BMW Spec E30. Because they are nice people, they let me horn in.

I met up with Travis at the track.

“Why,” he said, “are you doing this?” His tone indicated that he thought my plan was stupid.

“Why,” I said, “am I doing this?” My tone indicated that I thought my plan was transcendent. I was also on three hours



You strap in for hours at a time, pushing the limits of fuel capacity and that floppy Egg McMuffin you had for breakfast.

of sleep and cackling like a doofus, because that’s how amateur enduros work. Whether it’s travel or fixing a broken car or late-night margaritas, you never sleep.

Next to racing, shut-eye’s overrated anyway. AER runs split events, usually two nine-hour races per weekend. Saturday gave me E30 and Mazda and four stints at the wheel. Sunday produced all three cars and I don’t remember how much driving.

I blame brain fade for the memory problem. Also the fading of everything else in my body. The RX-7 had 250 hp, fat tires, no power steering. Matt likes 20-minute sprint races and a knife-edge chassis; the Mazda was thus blindingly quick for the first 30 minutes of each stint, because that’s how long my reedy arms could tame the oversteer before going to pudding. The car felt like a half-scale Dodge Viper with more ingrained Eat Me.

JOE WINDSOR-WILLIAMS

I wanted to marry and take its name. (Doodle it in the margins of a notebook, surrounded by hearts: *Mr. Sam FUJIMO*.) We finished second in class in the first race, killed a wheel bearing the next day while running up front.

Enduros: all different, all the same. Traffic, rain, sun, pounding around the track. That old swampy-pants feeling, where your fireproof long johns are sweat-soaked for days. Every muscle burns, but you keep driving, because what are you, dead?

The Spec E30 ran well. The other BMW snagged a podium. Each was helmed by a friendly team that reminded me of an old adage: With club racing, what you're doing is never so important as the fact that you're doing it. Not home, sitting.

After a stint in the E30 on Sunday, I pitted, leaped out, and sprinted toward the Mazda's pit stall. Minutes to strapping in again. Lungs afire. As I ran, a bystander yelled out.

"What's the rush?"

"I can't stop!"

It was half laughter, half plea. And relative, of course. I love this stuff, but I'm not sure I could do it for a living. The sport works too well as a blow-off valve for normal life. The diabolical focus of a sprint race. The odd bubble of an enduro, where your internal clock melts and you steep in bleary exhaustion. That withered feeling at the checker, where more driving, ever, sounds like torture.

And then, at the end of the season, you pack up and leave the track. Same every year. Fall air so crisp it pricks your ears. Winter coming. A rest from such nonsense.

I miss it already. ■

Sam Smith is an editor at large for R&T. Please address all relevant correspondence to "Floppy McMuffin."

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Jumping Games

CATCHING FIRE WITH TOWNSEND BELL & ROBBY GORDON.

PADDOCK PUNDIT BY MARSHALL PRUETT

AS A MOTOR-RACING REPORTER, my season starts in early January at Daytona, then speeds through marquee events at Silverstone, Indy, Le Mans, and countless other tracks until the ride stops in October. By the end of a typical season, I've recorded hundreds of interviews, with everyone from Indy 500 winners to legends who built the sport. I can't lie; it's an amazing way to earn a living, but the real gems—the unforgettable anecdotes—rarely fit the traditional narrative of Heroic Driver Locked in Epic Battle. I'm a sucker for stories of everything going wrong. My clear favorite from 2015, told to me one night over dinner, was from IndyCar veteran Townsend Bell.

"I was putting on my annual sponsor showcase a few years ago at Laguna Seca—right before Christmas," he said. "Toss guests into an exotic car, do some donuts around the paddock, and get them fired up to come on board as a sponsor."

"I wanted something different. I've known Robby Gordon forever and loved the idea of the Stadium Super Trucks series he was launching, so I asked if he'd be willing to loan me a truck. He's like, 'Yeah, yeah, no problem, but you gotta take care of me on this one.'" At the time, Gordon's high-flying, Baja 1000-style trucks were just going into production.

"Robby had one truck. 'It's brand-new, never even been started,' he says. 'It's due at a car show as soon as you get back. It's \$200,000 for one of these things, so don't f*** it up.'"

"We take the 101 to Paso Robles where we'll spend the night, then drive home in the morning. In Paso Robles, we meet a guy who says he has an uncle who might sponsor us and that maybe he'd enjoy a video of us jumping the truck." That, Bell tells me, was his first bad decision. The plan, fueled by wine that night, was to take the team to a sunrise video shoot at nearby Pismo Beach.

"We had the entire place to ourselves. I climb in, no helmet, street clothes, and fire the thing up. Do my first jump. It's all right, but let's do another one. Better. I do two more. They're good, but I'm maybe getting 10 feet up. These can do 30. No one's impressed."

Enter Bad Decision Number Two.

"So I go one more time, wide open, big air. Landed it! That was amazing. I know we got some great video now. Turn the engine off, and I hear a loud pop. What the hell was that noise? Flames."

The truck became a bonfire.

"I bail out, Ricky Bobby-style, turn around, and now the thing is just engulfed. I look for my friends, and they're gone in a full Forrest Gump sprint. The front end's on fire, the cabin's filling with smoke, so I run back, stick my head in the window, and find the fire [suppression] handle."

"I pull the handle and it comes off in my hand—it's not connected. The truck keeps burning and burning. We're nowhere near the water. All I've got is sand."

It took four hours for the truck to cool enough to be handled. "When it was done, it was so black, it looked like an Apache helicopter. The bodywork is completely gone, the wiring's gone, and I'm not sure how much else is recoverable. The thing's caked in oil and sand, and I'm convinced Robby's going to kill us. That's always an option with Robby."

They dragged it to L.A. Closing in on Gordon's shop, Bell could no longer avoid his reckoning. "We're way late, he's expecting his truck for this car show, and he knows nothing



"So I go one more time, wide open, big air. Landed it! That was amazing."

about the fire, so I call him. Robby says, 'Where the hell are you, and hey, how did it go?' I blurt out, 'Okay, it's not destroyed . . . it's just burned.' All I heard after that was 'WHAT THE F***?' about 15 times in a row."

Gordon instructed Bell to meet with his mechanics. And then let him stew for a few days.

"I feared I was on the hook for 200 grand. Robby finally called and said, 'The wrong dipstick was in it. It pressurized, blew out, and kept pumping oil onto the headers. It's a known problem. Let's just split the shipping costs for new bodywork.' It remains the cheapest 200 bucks I've ever spent." ■

Former race engineer Marshall Pruett has been gathering motorsports stories on behalf of Road & Track since 2010.

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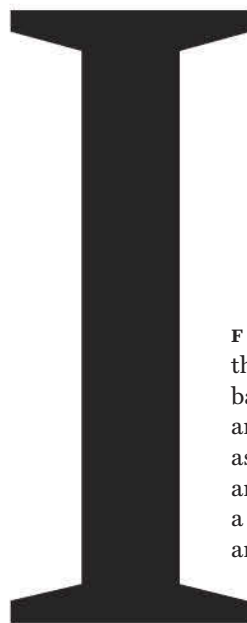
ROAD RUNNERS

EACH WINTER, AFTER THE TOURISTS LEAVE, THE AMERICAN SOUTHWEST RETURNS TO ITS WILD, LONELY STATE—THE NATURAL HABITAT FOR MEGAHORSEPOWER SEDANS.

BY JOE DEMATIO | PHOTOGRAPHY BY EVAN KLEIN







IF WE WERE IN A COEN BROTHERS FILM, this is when the camera would pull way back into the sharp blue afternoon sky, and our cars would be three specks on an asphalt strip in an endless bowl of sand and rust-colored rocks. Instead, this is a *Road & Track* feature story, which is, arguably, even better. Zoom in and a white BMW M5 is chasing a red Dodge Charger SRT Hellcat and a pearl Cadillac CTS-V at 155 mph.

Our movie script: ditch the Midwest as winter looms for someplace where we can drive as fast as we want, within reason. Figure out who builds the best high-speed supersedan and learn something about the differing natures of German and American performance along the way. So, on a Tuesday morning in December, we're streaking through the vast desert landscape with a 1922-hp fleet.

We've abandoned I-15, the last we'll see of a freeway for the next two and a half days, and are heading out of the oddly named town of Hurricane, Utah. Zion National Park is not far north, but we're storming southeast through the open valleys and plains of the Kaibab Indian Reservation. It's the perfect place to unleash a horsepower parade.

I'm in the M5. For decades, it's been the undisputed king of sport sedans. Limited numbers of M5s in the 1980s and '90s whetted American appetites for a car that can comfortably carry four adults at warp speed across continents. The E39-chassis M5 arrived in 2000 with a 394-hp V-8 and six-speed manual and cemented itself as *the* performance four-door. Many car-makers have attempted to duplicate its magic, with varying degrees of success, but none has really come close.

The current BMW M5, with a twin-turbo 4.4-liter V-8, brings a not insubstantial 575 hp and 500 lb-ft of torque to this party. Our test car has \$9250 carbon-ceramic brake rotors; the standard seven-speed dual-clutch gearbox; and the Competition package, which yields a 15-hp increase. The M5 is the sole car in this trio that is also offered with a six-speed manual. With either gearbox, it's a fine high-speed tourer. The seat doesn't just adjust so much as it contours around your spine. The simple steering wheel—not silly thick as was recent BMW M practice—melds

with your hands. The V-8, normally luxury-car quiet, comes alive when it spins toward its 7200-rpm redline. BMW has clearly been at this for a long time.

This landscape of sedimentary rock could be on Mars—and these V-8 sedans feel like they could rocket you there.

Maybe too long. Whereas 20 years ago there was a performance frontier for BMW to conquer, now the M5's capabilities hide behind the company's EfficientDynamics initiative. The car defaults to its softest, most efficient setting every time it starts. You have to press multiple M buttons to get into attack mode. "You almost have to remind it that it's an M5," says features editor David Zenlea, who's riding shotgun and calmly texting his girlfriend as I pin the accelerator.

The rush to 100 mph is no rush. The only real indication of our velocity is the speedo needle's sweep. The road tramples underfoot, but the vast landscape barely seems to change. I see 160 mph from the optimistic speedometer. It feels like we can stay here all day, something the M5 would gladly do.

We pull into a gas station in Fredonia, a grim little Arizona desert town just south of the Utah border. As road test editor Robin Warner alights from the Hellcat, he says, "It's shocking how easy these speeds are to achieve in these cars on these roads."

Inside the gas station, Warner asks the clerk if there are any pretty places nearby to take pictures. She pauses, purses her lips, and replies, "No." Okay, then. Onward.

I toss the BMW keys to editor-in-chief Larry Webster and open the big driver's door of the Dodge. Once I'm settled in the wide, flat seat, it's a stretch to reach the handle and pull the door shut. The 707-hp Hellcat is the biggest and heaviest car here, classified as large rather than mid-size by the EPA and weighing a hefty 4576 pounds. The view through the windshield and over the hood and its Mad Max bulge is very different compared with the M5. You feel like you're perched on top of the seat, rather than in it. With the first turn of the wheel, you're aware of the 6.2-liter Hemi suspended between the strut towers.

That sense of mass quickly recedes on Route 89A as it undulates through the desert, rising in elevation. The Hellcat, in typi-

cal American fashion, has none of the M5's subtlety. It makes you want to be stupid: peeling away from stop signs, hanging back from the group just to gun it and reel everyone in. Suddenly we are in a different climate altogether, at 6000 feet amid tall ponderosa pines, the ground dotted with snow, the late-autumn setting sun pink behind the treetops. The Charger's ambient-temp display falls below freezing. Warner the Worrier, now my passenger, gets on the radio and warns of the possibility of ice and what that might do to powerful sedans riding on summer tires.

The road twists and climbs through the forest. At 8000 feet, we reach Jacob Lake, the juncture of the sole paved road that leads to the North Rim of the Grand Canyon. The temperature drops to 22 degrees. Rock walls dotted with evergreens and taller pines loom in the sweet early-evening light. At a scenic overlook, we get out of the cars, shivering in the high-altitude chill. Silence envelops us, and empty blacktop lies ahead.

Back in the saddles, we're hustling down to Marble Canyon, Arizona, hoping to make closing time at the Marble Canyon Lodge. Webster, leading the way in the Cadillac, comes over the radio. "Wow. I love how connected the car feels. It just hammers." I keep pace in the Charger, but the connection isn't nearly as clear—the suspension floats and the steering is numb.

We arrive cloaked in complete darkness. They've kept the kitchen open for us at the lodge, and the only other customer is an old Navajo woman who's staying warm with tea and, she notes, a splash of rum. The waitress tells us that the area is known as the gateway to Colorado River rafting through the Grand Canyon. And for fishing.

"What kind of fish?" I ask.

"Trout," she shrugs. "Just not the trout on our menu. That comes frozen."

There's no Wi-Fi in the rooms and the block of a Magnavox

TV on my dresser is mostly fuzz, so I slip into bed and am asleep before the wall heater has taken off the chill. Come morning, it's 23 degrees outside my room. Warner remote-starts the Hellcat, and its exhaust pipes rattle the thin windowpane. I draw the curtain to reveal the immense ochre walls of Vermilion Cliffs bathed in brilliant morning sun.

A hard left from our hotel back onto 89A takes us over the Colorado River and then on a fast ribbon across the desert floor, the Echo Cliffs on our left. I'm once again loping along in the Hellcat, which is sucking big gulps of fresh cold air into its huge supercharger, happy as can be. Warner and I utter "Hell, yes!" in unison as we snake through a narrow pass, the red rock walls closing in

The Americans follow a similar formula—bolt a blower to a 6.2-liter OHV V-8, watch scenery blur. Caddy has perfect seating position (left) and the best steering.

The only real indication of our velocity is the speedo needle's sweep. But the vast landscape barely seems to change.





around us. The mountain passes open to an endless valley. Distant red, brown, and pink cliffs define our amphitheater, and an empty road stretches for miles, the three smokestacks of the Navajo Generating Station visible on the horizon.

This is what we came for. Hammer time for the Hellcat. Its eight-speed gearbox is well calibrated for triple digits, even if some powertrain vibration seeps into the cabin. The supercharger whine reaches fever pitch as I see 157 mph flash, and my grip on the meaty wheel tightens as the desert becomes a red-and-tan blur in my peripheral vision. No surprise, 157 mph in a Dodge is a lot different than in a BMW. At first, it's a little disconcerting to go this fast in something that rides like a water bed, but after a few minutes, it feels just fine. No, it feels great.

After lunch in Page at a café in a visitor's center—where signage warns not to waste the water of the mighty Colorado

River—I get my turn in the mighty CTS-V. The seats are supportive but narrow, and I can barely wriggle my hand between the seat bottom and the door to reach the power adjustments. The steering wheel and the cabin trim are too flashy for my tastes, and the CUE infotainment is still a mess. Who cares? I jump to 130 mph as if I'm pulling away from a stoplight, the Caddy's blower whining nearly as loudly as the Hellcat's. No question, the CTS-V, with the same supercharged engine as the Corvette Z06, is the driver's car of the group. At higher speeds, the Cadillac talks to you more than the BMW and inspires more confidence than the Dodge. The steering—surprisingly, the only electrically assisted rack of the bunch—brings more of the road into your hands, and the throttle responds more quickly. You get the sense that Cadillac engineers are still enthralled with the whole notion of driving fast, the same way



we are, whereas BMW is kind of bored with it.

The pace is slower at a gas station convenience store in Kayenta, Arizona, the heart of the Navajo Nation. An old woman is making her purchase in Navajo, and the clerk responds in kind. On the edge of town, we pass a large man standing on a corner, layers of belly protruding from his sweatshirt. He's hitchhiking, with a whole lot of desert ahead of him. I contemplate this for another mile, then make a U-turn. I pull up beside him.

"Where ya going?"

"Just up to Monument Valley."

"Hop in."

"Hop" is not the correct verb, because it's all he can do to wedge his body into the CTS-V's bolstered seat and pull his thick ankles over the sill. If only I had the Hellcat, with its broad, flat seats.

I tell him my name and he tells me his. Let's say it's Andrew. "There's something else I need to tell you," Andrew says, leaning toward me unsteadily. "I'm very intoxicated."

The others are waiting up the road for us and fall in behind my Caddy. The radio is conspicuously silent. "Those guys in the BMW and the Dodge are with me," I say. "You and I are in the newest, fastest Cadillac."

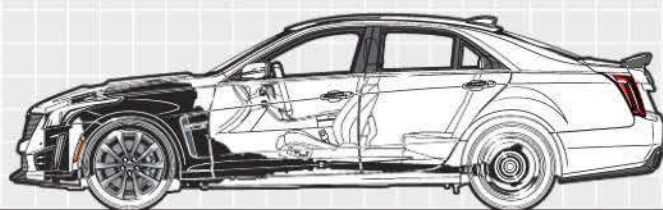
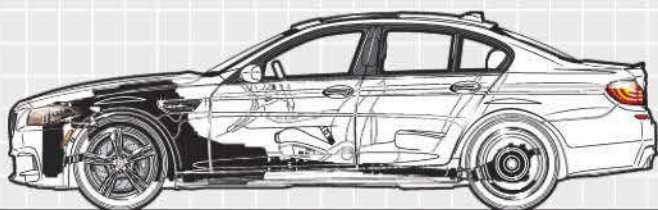
Andrew seems not to care about the four-door Z06 but is grateful for the ride. I learn that he's 40 years old and semi-homeless. He'd gone down to Kayenta to help his brother-in-law fix a horse corral but ended up on a two-day bender. His drunken breath fills the cabin, and it occurs to me that he could vomit onto the suede trim. I ask Andrew some questions about the buttes and mesas of Monument Valley as they rise into view. He answers by leaning over me and pointing out my window,

*We're just four men with three powerful steeds
and infinite space to dream and explore.*

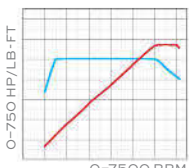
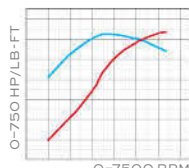
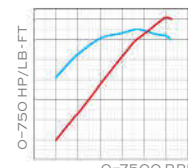


2015 BMW M5

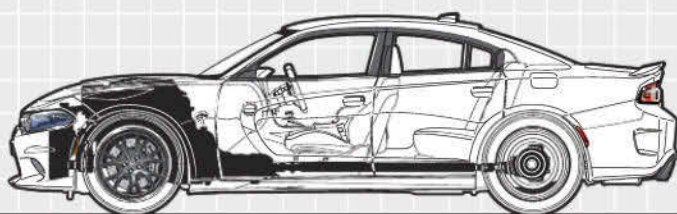
2016 CADILLAC CTS-V



SPECIFICATIONS

	BMW M5	CADILLAC CTS-V	DODGE CHARGER SRT HELLCAT					
PRICE								
BASE/AS TESTED	\$95,850/\$112,400	\$85,990/\$91,385	\$68,640/\$71,730					
ENGINE								
CONFIGURATION/TYPE	32-valve twin-turbo DOHC V-8	16-valve supercharged pushrod V-8	16-valve supercharged pushrod V-8					
LAYOUT	front, longitudinal	front, longitudinal	front, longitudinal					
MATERIAL	aluminum block and heads	aluminum block and heads	iron block, aluminum heads					
DISPLACEMENT	4395 cc	6162 cc	6166 cc					
BORE x STROKE	89.0 x 88.3 mm	103.3 x 92.0 mm	103.9 x 90.9 mm					
COMPRESSION RATIO	10.0:1	10.0:1	9.5:1					
REDLINE	7200 rpm	6500 rpm	6200 rpm					
FUEL DELIVERY	direct	direct	port					
	 575 PEAK HP (SAE) @ 6000-7000 RPM 500 LB-FT PEAK TORQUE @ 1500-5750 RPM	 640 PEAK HP (SAE) @ 6400 RPM 630 LB-FT PEAK TORQUE @ 3600 RPM	 707 PEAK HP (SAE) @ 6000 RPM 650 LB-FT PEAK TORQUE @ 4800 RPM					
TRANSMISSION								
DRIVEN WHEELS	rear	rear	rear					
TYPE	7-speed dual-clutch automatic	8-speed automatic	8-speed automatic					
FINAL-DRIVE RATIO	3.15:1, limited-slip differential	2.85:1, locking differential	2.62:1, limited-slip differential					
GEAR	RATIO	CALC MAX (RPM)	GEAR	RATIO	CALC MAX (RPM)	GEAR	RATIO	CALC MAX (RPM)
1	4.81:1	38 mph (7200)	1	4.56:1	39 mph (6500)	1	4.71:1	43 mph (6200)
2	2.59:1	71 mph (7200)	2	2.97:1	59 mph (6500)	2	3.14:1	64 mph (6200)
3	1.70:1	108 mph (7200)	3	2.08:1	85 mph (6500)	3	2.10:1	96 mph (6200)
4	1.23:1	149 mph (7200)	4	1.69:1	104 mph (6500)	4	1.67:1	121 mph (6200)
5	1.00:1	155 mph (6100)	5	1.27:1	139 mph (6500)	5	1.29:1	156 mph (6200)
6	0.84:1	155 mph (5125)	6	1.00:1	176 mph (6500)	6	1.00:1	202 mph (6200)
7	0.67:1	155 mph (4100)	7	0.85:1	200 mph (6275)	7	0.84:1	204 mph (5275)
			8	0.65:1	200 mph (4800)	8	0.67:1	204 mph (4200)
STEERING								
ASSIST	hydraulic	electric	hydraulic					
RATIO	12.7:1	11.2:1-15.5:1	14.4:1					
URNS LOCK-TO-LOCK	2.3	2.2	2.1					
TURNING CIRCLE	40.7 ft	40.3 ft	38.5 ft					
SUSPENSION								
FRONT, REAR	F multilink, R multilink	F strut-type, R multilink	F control arms, R multilink					
BRAKES & TIRES								
FRONT	16.1-in vented rotors, 6-piston fixed calipers	15.4-in vented rotors, 6-piston fixed calipers	15.4-in vented rotors, 6-piston fixed calipers					
REAR	15.6-in vented rotors, 1-piston sliding calipers	14.4-in vented rotors, 4-piston fixed calipers	13.8-in vented rotors, 4-piston fixed calipers					
TIRES	Michelin Pilot Super Sport	Michelin Pilot Super Sport	Pirelli P Zero					
SIZE	F 265/35R-20, R 295/30R-20	F 265/35R-19, R 295/30R-19	F 275/40R-20, R 275/40R-20					
BODY & CHASSIS								
STRUCTURE	steel/aluminum unibody	steel unibody	steel unibody					
LENGTH x WIDTH x HEIGHT	193.5 x 74.4 x 57.0 in	197.6 x 72.2 x 57.2 in	200.8 x 75.0 x 58.3 in					
WHEELBASE	116.7 in	114.6 in	120.4 in					
TRACK, F/R	64.1/62.3 in	62.1/61.2 in	64.0/63.7 in					
DOORS/SEATS	4/5	4/5	4/5					
EPA CLASS	mid-size	mid-size	large					
CARGO CAPACITY	18.4 ft ³	13.7 ft ³	16.5 ft ³					
DRAG COEFFICIENT x FRONTAL AREA	0.33 x 25.8 ft ²	0.34 x 25.1 ft ²	0.34 x 26.2 ft ²					

2016 DODGE CHARGER SRT HELLCAT



	BMW	CADILLAC	DODGE
WEIGHT			
CURB WEIGHT	4300 lb	4128 lb	4576 lb
DISTRIBUTION F/R	51/49%	53/47%	57/43%
WEIGHT-TO-POWER RATIO	7.5 lb/hp	6.5 lb/hp	6.5 lb/hp
FUEL			
EPA CITY/HWY	14/20 mpg	14/21 mpg	13/22 mpg
FUEL CAPACITY	21.1 gal	19.0 gal	18.5 gal
FUEL RANGE	422 mi	399 mi	407 mi
RECOMMENDED FUEL	premium	premium	premium

	M5	CTS-V	CHARGER
0-60 MPH, SECONDS	3.8	3.5	3.7
0-1/4 MILE, SECONDS @ MPH	12.0 @ 122.3 MPH	11.6 @ 126.1 MPH	11.7 @ 125.1 MPH
TOP SPEED, MPH	155	200	204
ROADHOLDING, G (300-FT SKIDPAD)	0.92	0.98	0.90

ACCELERATION			
1 FOOT (ROLLOUT)	0.4 sec	0.3 sec	0.3 sec
ROLLING START, 5-60 MPH	4.0	3.9	4.1
0-10 MPH	0.4	0.3	0.4
0-20	1.0	0.9	1.1
0-30	1.7	1.4	1.7
0-40	2.4	2.1	2.4
0-50	3.1	2.7	3.1
0-60	3.8	3.5	3.7
0-70	4.8	4.3	4.6
0-80	5.9	5.2	5.6
0-90	7.0	6.2	6.5
0-100	8.3	7.4	7.7
0-110	9.9	8.9	9.0
0-120	11.6	10.5	10.8
0-130	13.5	12.3	12.7
TOP SPEED	155 mph	200 mph	204 mph
	(ELEC LTD, MFR)	(DRAG-LTD, MFR)	(DRAG-LTD, MFR)

BRAKING			
60-0 MPH	122 ft	112 ft	114 ft
80-0 MPH	209 ft	191 ft	194 ft
FADE	none	mild	mild

HANDLING			
ROADHOLDING	0.92 g	0.98 g	0.90 g
	mild	mild	mild
BALANCE	understeer	understeer	understeer

TEST NOTES

Despite weighing more than two tons each, all three sedans provide excellent chassis balance, allowing them to take advantage of their huge power. However, the Hellcat stands out as the top hooligan machine in this test.

his thick arm planted against my chest, his face close enough to kiss. Maybe this wasn't such a great idea.

After I drop Andrew off at the Monument Valley Trading Post, shaking his hand and giving him a ten-dollar bill to buy a fried-chicken dinner, I reunite with the others at the northern edge of the Mitchell Mesa, where they are surveying the massive 20-story-high slabs of reddish-brown stone scattered across the desert floor. We conclude (1) the vista is monumental, just as promised; and (2) we're happy we're not here in the summer tourist season, when RVs and rental cars would have clogged our rapid transit system. Sunset finds us driving out of the valley, the monuments black, outlined by the murky blue sky.

We don't know where we're going to sleep tonight. The gazetteer shows 261, a roundabout route toward Glen Canyon, with switchbacks through the Valley of the Gods about 10 miles above Mexican Hat. Seems doable. We rush blindly into the night, superchargers whining, HID headlights stabbing into the desert. Asphalt turns to gravel and, suddenly, into a gnarly hill climb, with no sense of place or space. Hairpin after hairpin, loose gravel, no shoulder, just rock walls on one side and drop-offs on the other. Webster's in the Hellcat churning up a cloud of dirt that I can barely see through, so I hold back in the M5 and fling into the corners when the dust settles.

At the top of the mountain, asphalt returns and the road straightens across a plateau of scrub trees. Webster is burning his way through the dark and his voice, exuberant, crackles over the radio: "I almost hit a cow!"

Open Range signs indicate that we are in a livestock area. Jackrabbits scurry across the road. At a juncture, Webster pulls over in the Hellcat and jumps out.

"Look at the sky."

We kill the engines and extinguish the car lights, leaving us alone with the cold stillness, craning our necks toward the endless stars and constellations. Our L.A.-based photographer practically jumps for joy and scrambles for the correct lens. He's never seen skies like these in light-polluted Southern California.

Glen Canyon is too far, so we turn toward Blanding, Utah, despite its unpromising name. It's an amazing, fast, nighttime run into town: 35 glorious miles of smooth pavement all to ourselves, twisting down a mountain, across washes, and through thickets of pine. Out here, the M5 comes into brilliant focus. I use the wheel-mounted paddles to keep the turbo V-8 boiling above 4000 rpm, and every control, every input feels like it's there for one purpose: to allow me to own this road.

Still on a high, we roll into Blanding. The county morgue is on the main drag into town, which doesn't make for the friendliest greeting, but the streetlights have Christmas trim. Another motor lodge. Spartan, but a friendly desk clerk and rooms. The nearby steak house doesn't have alcohol on the menu, not that

*We rush
blindly into
the night,
superchargers
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HID headlights
stabbing into
the desert.*

we need any liquid mood enhancers. Across the room, at a big round table, men in Carhartt pants and wool shirts look up at us. They're not hipsters; they do real work for a living.

The next morning at 6:15, those men are packing up their work trucks in the motel parking lot as we once again fire up our V-8s and heated steering wheels. We backtrack up the mountain and across cow country. Webster, in the Cadillac, establishes a 100-mph pace. At the top of the hill we climbed last night, the morning light reveals exactly how foolhardy we'd been to play here in the dark. Slashing tracks in the gravel show where performance tires have cut way too close to the astounding drop-offs. Looking out over the Valley of the Gods, we're far away from the constraints of civilization. Just four men with three powerful steeds and infinite space to dream and explore. Is that John Wayne stepping out from behind a boulder? He could only wish he'd had a Hellcat.

A utility crew in a white Silverado snaps us back to reality. It's 425 miles to Las Vegas, where we all have flights in the morning, and it's well after dark when we finally hook up with I-15. Our supersedans morph into ordinary family transport, surrounded by the real world of semis and packs of distracted drivers in boring sedans and crossovers.

A radio discussion ensues about our three days in the cars. Webster and Zenlea gush over the Cadillac. "It's more of an M5 than the M5 is," Zenlea says. "Proof again that America now builds the best-driving luxury cars," Webster agrees. Warner, usually so rational, is thinking about putting off parenthood a little longer so he can buy a Hellcat. "It's big, brash, brutish, and brazen. For chrissake, it has 707 hp, seats five, and walks away from a hundred-and-twelve-thousand-dollar BMW at 155 mph."

Me? As much fun as I had driving the Caddy and the Hellcat, and as great as it is that Detroit has produced not one but two luxury sedans capable of hitting 200 mph, every time I got back into the M5, with its amazing seats, perfect steering wheel, and quiet sense of purpose, I felt like I was home. Yes, BMW's been obsessed with high-performance crossovers, seemingly at the expense of high-performance cars, but the M5 is still the real deal. BMW has been making wine for a long time. Although some vintages are better than others, it still has a fine hand with the grape.

The billion points of light of The Strip stretch out horizontally before us as we approach from the north. We're speeding toward it, and with every mile, the lights get a little closer and a little brighter. We start picking out the familiar shapes of the fake Eiffel Tower and the fake pyramid and the gilded casinos. This temple of American wealth and will draws us in like bugs to a giant zipper light, and our feet go down a little harder on the gas pedals. ■

*Slashing tracks
in the gravel
show where
performance
tires have cut
way too close to
the astounding
drop-offs.*

Who needs
refinement? The
Hellcat knows how
to make fun on a
road like this.





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THE LEAST EXPENSIVE 911 GOES TURBO,
AND THE WORLD RAISES AN EYEBROW.

BY SAM SMITH | PHOTOGRAPHY BY STEFFEN JAHN





N

EW 911s MAKE PEOPLE unhappy.

Not most people. Most people who buy a new Porsche 911 are probably thrilled. Stereotype says the car

makes junior lawyers feel like senior lawyers. Or that it lets motorsport nerds—ahem—bathe in the sound of Germany/the Targa Florio/a plotless but otherwise excellent Steve McQueen film focused on the Serious, Squinty-Eyed Challenge of Motor Racing. (If you don't get the reference, good for you.)

The unhappy ones usually own an older 911. They have an emotional attachment tied to the car's character. Small changes get them worked up. Big ones get them writing forum manifestos.

Because Porsche listens to its customer base, the big changes are rare, but they happen. And so we have a new 911—the 2017 Carrera, or 991.2 internally—that is mostly identical to the car before it. A face-lift, with a few chassis and software tweaks. The Carrera S gets available active rear steering, like the GT3. A new nav system. It's basically the same car.

Only now it has turbochargers.

No "ordinary" 911 has ever been turbocharged from the factory.

When the news of the car hit, the faithful got itchy. They were undoubtedly worried about personality. Porsche has offered at least one forced-induction 911 in each of the model's generations since 1974; until now, the tech was reserved for the most powerful cars in the lineup.

For one reason or another, those machines evolved to specialize in low-effort speed. Take the current 911 Turbo S: 560 hp, a whopping 3600 pounds, all-wheel drive, and automatic-only. Neat, but compared with the relatively simple base 911, a kind of Fat Elvis—still filling arenas, but not what got the world's attention. (A friend who now edits a Porsche magazine once called the 2009 Turbo "a Buick that eats Ferraris." He wasn't wrong.)

And so you see why the diehards were nervous.

Back to the Carrera. Last year, the car used a naturally aspirated, 7800-rpm, 350-hp, 3.4-liter flat-six. The 3.8-liter Carrera S made 400 hp. For 2017, both models get a 3.0-liter with a 91-millimeter bore (6.0 millimeters under the old Carrera, 10.9 below the old S) and 76.4-millimeter stroke (1.1 millimeters under both).

The regular Carrera now makes 370 hp, and the Carrera S, 420. The S's gains were achieved mostly through programming, which means added boost. Torque rises to 331 and 368 lb-ft, respectively, but the big change is in delivery. The 2015 911 made peak grunt at 5600 rpm. Both 2017 cars do it from 1700 to 5000 rpm. Either can be paired with Porsche's seven-speed PDK automatic transmission or a seven-speed manual.

The new engine is a moderate redesign of the old. The cylinder heads are new and now locate their fuel injectors more centrally above the pistons, aiding combustion efficiency. The exhaust cam now features variable timing, and the cylinder liners are now composed of plasma-transferred iron, replacing Alusil. The former helps throttle response and torque, and the latter reduces friction and oil consumption. In other gain-an-inch news, the aluminum crankcase has lost 3.3 pounds, and the engine's plastic oil pan is 4.4 pounds lighter. Hooray for iterative engineering.

Predictably, Porsche claims that the engine went small and turbo for reasons of efficiency.

Stoic resistance to fashion is in the 911's DNA, but virtually every panel and piece of trim on the car has changed: taillights, headlights, bumpers, fenders.





That makes sense, but it also leaves you wondering what a highly tuned, similarly efficient, non-turbo 3.0-liter would feel like. How that short-stroke, lag-free ripper would snap up the tach, and how much tire roasting you could do with shorter, real-world—say, 160-mph—gearing. Frankly, that sounds far more awesome than the car we got, but you can't have everything.

What you can have is context. The last time a 911 had an engine this small, you could still buy a new DeLorean. Four hundred and twenty horsepower is just four horses shy of a 1998 U.S.-market 993 Turbo S, the last air-cooled 911 Turbo sold in America. And viewed on its own, the 2017 engine looks ominous, a hulking suitcase of plumbing. Or maybe a small piece of German HVAC equipment. With some ominous spilled on it.

That mass is bolted into a car that, thankfully, still looks like a 911. Most of the exterior is new; taillights, headlights, fenders,

bumpers, and rear deck are all different. The strakes on the engine lid are now vertical instead of horizontal, and tastefully

rounded. The greatest change in the interior is the appearance of a flush-mounted touch-screen for the car's infotainment system. The whole megillah does that time-honored 911-face-lift thing, where it initially seems overdone and tacky—especially when parked next to an older 911—and looks familiar five minutes later. Hooray for iterative design.

That flat-six defines the car, as it always has. Both the Carrera and Carrera S are remarkably quick, if noticeably different from each other. The Carrera's engine feels more linear than that of the S, with little of

the elastic response common to turbochargers. Call it one of the world's best imitations of a naturally aspirated engine. It loves big throttle off idle, and unlike in the last Carrera, you don't need to cane it to keep pace on a back road. (Your author misses this, but your author also wants to install an 8000-rpm

2017 Porsche 911 Carrera

PRICE \$90,395

ENGINE DOHC 24-VALVE
3.0-LITER TWIN-TURBO H-6

PEAK OUTPUT 370 HP @ 6500 RPM,
331 LB-FT @ 1700–5000 RPM

TRANSMISSION 7-SPEED
MANUAL, RWD

L X W X H 177.1 X 71.2 X 51.3 IN

WEIGHT 3200 LB

0–60 MPH 4.4 SEC

TOP SPEED 183 MPH
ON SALE NOW



Cosworth BDA at the foot of his bed and rig it to work as an alarm clock. Grain of salt.) The old car was cammy and geared long. The tall gears remain, but the camminess is gone.

The S is a mixed bag. On one hand, it's fast as blazes. There's a shocking amount of thrust on tap and zero perceptible lag above 4500 rpm. That HVAC unit just rips across the tach merrily. On the other hand, the engine can feel distant and rubbery at low rpm. Given the gearing, that means most of normal driving. Forward motion is sometimes a hair behind your right foot—a compounding, rubber-bandy, waitmoreMoreMORE.

Call it a personality test. The rule used to be that 911 buyers simply chose a model by what they could afford, the feel mostly the same. Now it's more of a question—speed or a car that evokes the old-school?

Not that either is a bad choice. Each engine redlines at 7500 rpm, and while shove noticeably tapers past 6500, you still end up revving the thing out. Because it's there, because it's fun, because the gentle torque drop doesn't make redline seem gratuitous. (*Cough* 9000-rpm 911 GT3 *cough*.) The car feels alive on rough pavement and grips like crazy on smooth asphalt. Steering feel through the electrically assisted rack isn't a patch on a hydraulically assisted or manual-steer 911—read: all prior to 2012—but Porsche has continued to improve it, and the wheel is slightly more lively than before. The rear-steering system works the same magic as on the GT3: Below 30 mph, the turning circle goes microscopic. Above 50, direction changes happen like thought.

And that sound. With or without the optional sport exhaust,

the car just sounds more gruff and air-cooled—throaty, with crackle-gargle backfires—than its predecessor. From the sidewalk, you get that Live from the Mulsanne honk, half snort, half bloodthirsty tenor. Inside, windows down, you can hear the wastegates whoosh on closed throttle.

The seven-speed manual (above) is improved. Two small turbos reside under the new vertical strakes (opposite).

Even with the flaws, either 911 is satisfying as hell. A few more details: You don't want the automatic, unless you only care about traffic or tenths in a lap time. The seven-speed manual is getting better; compared with early 991s, new internals make the 'box's characteristically tight shift pattern less annoying. The navigation system has improved; it works surprisingly well for a Porsche offering, with responsive pinch-to-zoom, Wi-Fi, Google Earth, and online search. (And no, in this day and age, we won't cheer anyone for finally accomplishing what most cell-phone companies did a decade ago.)

And of course, the most important ask: If you buy one of these things, will it make you happy? Depends on what you want a car like this to do. We just land on familiar issues of philosophy. How do you define progress with a machine whose primary purpose is fun? For a driver, should a turbocharged engine feel like what it is, or what we wish it were? What's worth wanting in a fast car, and which of those qualities are irrelevant in the modern world?

Either way, there's a new 911. The dang thing remains one of the best cars on earth. You have our permission—as if you needed it—to get worked up. ■





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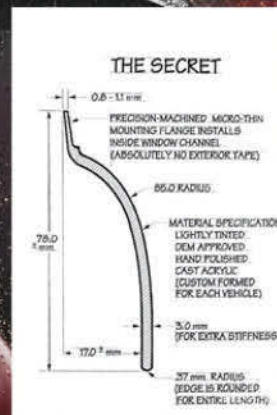
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ANGELS FROM STONE

GENE HAAS CONQUERED NASCAR, BUT CAN THE AMERICAN MAKE A DENT IN FORMULA 1?

BY JACK BARUTH | PHOTOGRAPHY BY JAMEY PRICE

THE SECRET PARTS,” Gene Haas laughs, “are all in here.” He’s referring to a piece of titanium bar stock that he’s just randomly selected from a large cart holding dozens of similar items. In that moment I am reminded of Michelangelo, who reportedly said, “Vidi l’angelo nel marmo e scolpii fino a liberarlo” (I saw the angel in the marble and carved until I set

him free). Haas, too, is a sculptor. The company he started eight years after leaving school, Haas Automation, is America’s foremost manufacturer of CNC machine tools. There are several of them surrounding us at the moment, cutting and grinding that plain bar stock into jewellike, complex-looking parts. When photographer Jamey Price turns his lens toward one of these miniature sculptures, we are told politely but firmly that no pictures “like that” are going to leave the building.

There’s a reason for the secrecy. Everything we see is going into a Formula 1 car or a wind-tunnel model.

A decade and a half ago, Haas decided to go racing in NASCAR. He wanted a new challenge, and he wanted to promote Haas Automation. In 2009, Tony Stewart became his partner and primary driver for what is now known as Stewart-Haas Racing. Race wins and the championship followed in relatively short order. Now Haas is looking for another challenge, and what could be a bigger undertaking than F1? Oddly enough, the last U.S. team to run in F1 was also named Haas; however, there’s no relation between Carl Haas, the partner in that venture, and the man with whom we’re speaking today.

Stewart-Haas is famous for its methodical, detailed approach to racing. This new Haas F1 facility, built next to Stewart-Haas in Kannapolis, North Carolina, clearly carries on the tradition. It’s bright white everywhere. You could eat off the floors or perform brain surgery in the conference rooms. Team members, dressed in black, move purposefully. There’s no idle chatter. Everybody involved knows the magnitude of this effort.

Gene Haas isn’t the first person to make the jump from Daytona to Monaco; Roger Penske did it 40 years ago and was also the last American team principal to win an F1 race. Haas is, however, the first to try it in the megabuck modern era. He’s also

arguably the best candidate out of current NASCAR owners to take the shot. Haas isn’t just a machine-tool builder.

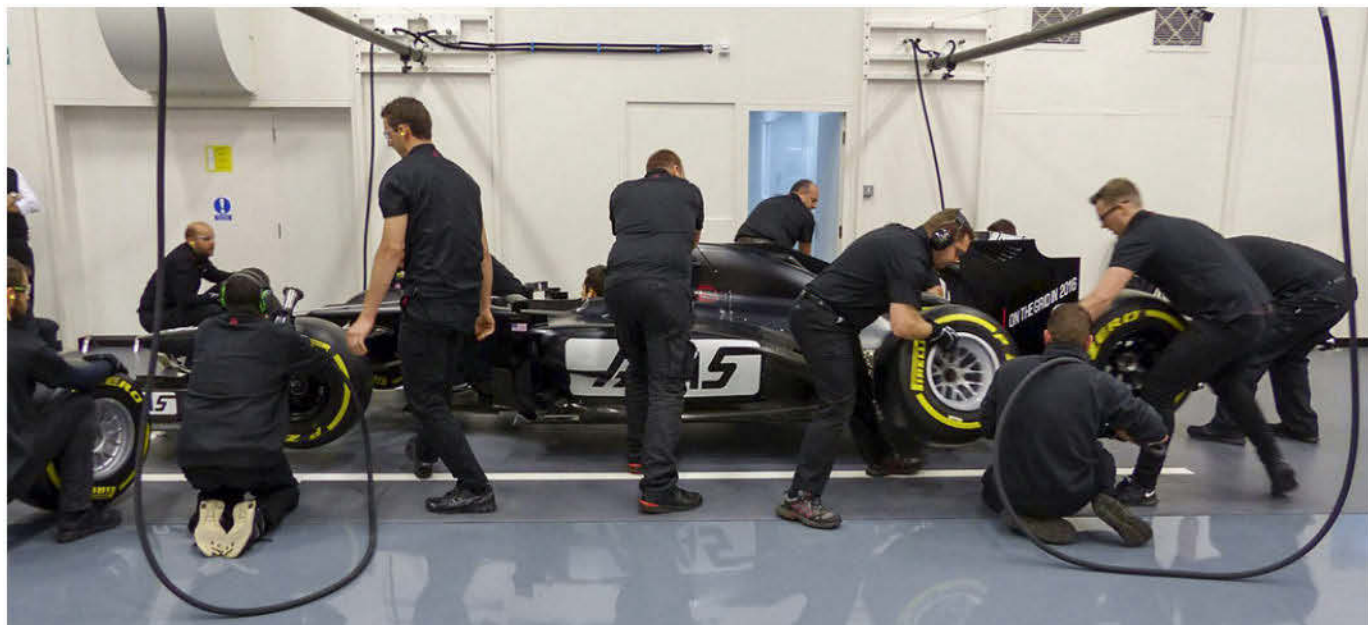
The man understands quite a bit about sculpting people, and teams, until the angel appears out of the stone. It took him only seven years to assemble the team that won the NASCAR championship. His employees speak about his work ethic, his determination, his unwavering focus on success and measurable results. “Gene never stops,” says his business partner, former Red Bull Racing technical director Guenther Steiner. “He never stops thinking.”

Haas is legendary for his intelligent but flexible approach to racing. It was the decision to bring Stewart on board in 2009 that made the NASCAR championship possible, and that happened because “Smoke” was given an equity stake in the operation. It’s hard to imagine most team principals being willing to make an owner out of a driver, but Haas is a businessman who realizes the potential of a smaller stake in a much more valuable enterprise. According to *Forbes*, the value of the team has more than doubled since Haas CNC Racing became Stewart-Haas Racing, and it is now number three among all Sprint Cup teams. For the F1 program, Haas has chosen to hire Romain Grosjean as lead driver, with Esteban Gutiérrez in the second seat. “In NASCAR, we had every piece but the driver,” Haas says. “With Formula 1, we won’t immediately be at that point. If we gave our first car to, say, Fernando Alonso, we really wouldn’t be doing him justice. But we’re pleased Grosjean came on board. . . . I didn’t think he was going to take the job!”

Across the country, in Silicon Valley, they talk about “pivoting” like it’s something they made up. Let me tell you: Gene Haas can *pivot*. First example: the Haas F1 building itself. It was nearly complete well before the team entry was accepted. The reasoning was simple. At the time Haas decided to go ahead with a plan for F1, the NASCAR team was in the process of a large-scale expansion of its facilities. The cost of expanding the expansion, so to speak, was much lower than the cost of waiting until later and doing an entirely separate shell for Formula 1. So they built the whole thing. And what if the team application hadn’t gone through? Haas seems mystified by the question. “Well, we’d certainly end up using the space,” he notes, nodding at the already-overflowing Stewart-Haas side. And there was an added benefit: The combined facility was large enough to put a really nice replica of a NASCAR pit lane out back.

Second example: the fact that the Haas F1 building is mostly empty. The initial plan was for the team to be completely self-sufficient, in typical Formula 1 constructor fashion. So there’s

Gene Haas at his North Carolina facility on the eve of his F1 debut.



Practicing pit stops on an early Haas F1 prototype car.

room for everything from assembly to the computer farm required for computational fluid dynamics analysis. At the same time, Haas made sure his Windshear rolling-road wind-tunnel facility in Concord, North Carolina, could be adapted to the 60 percent models mandated by F1. By the time the team's application had been accepted, however, the rules had been changed to allow significantly more flexibility in the way F1 cars are designed and built. So Haas entered into a "technical partnership" with Ferrari that allowed it to share certain engineering and design resources. They also cut a deal to run 60 percent models in Ferrari's wind tunnel, an arrangement that has raised suspicions among other top teams that Haas might "lend" some time back to Ferrari. "Nonsense," is Haas's response to that. "The FIA has observed everything we've done. There isn't going to be any problem."

Haas also contracted with Dallara to build the carbon-fiber tub that serves as the heart of each chassis. With an eye for a bargain, the team acquired the Marussia headquarters in the United Kingdom, thus picking up computing resources.

So the cars are built in Italy and loaded with Ferrari engines, while the team trains and prepares in the U.K. That's a hell of a pivot from the made-in-North Carolina strategy. For Haas, who is always looking for a way to do something better, faster, or cheaper, it's business as usual. "The question we always ask is, How can we not spend money?" he says. "Each team in Formula 1 is a constructor. And for a lot of them, there's pride associated with that. They want to make everything themselves. But 50 percent of these cars can be sourced from elsewhere." This approach to spending is impressive, but it's also necessary; Haas and Steiner put their budget in the \$60-million to \$150-million range, small potatoes in a sport where the top four teams each spent in excess of \$400 million last year.

In December, Steiner raised eyebrows by declaring that the Haas F1 team would not finish last in the 2016 championship, a statement he has no trouble doubling down on when pressed. "The advantage of Gene," he laughs, "is that . . . if somebody tells

him some BS, he sees through it. And that is why we're not going to be last!"

"There are always these billionaires that want to come into F1," Haas adds, "and they have all the money in the world, but they don't have our experience running a team, making things work. They flounder. . . . Running a team is like running a race. You look, you see the problem, and you adapt." Yet both Haas and Steiner are careful to state that they don't expect to match the zero-to-championship-in-nine-years mark set in NASCAR. "It's a technical challenge," Haas says, "and we don't even know the extent of the challenge yet."

"F1 is a technical challenge, and we don't even know the extent of the challenge yet."

Asked how long he is willing to stay in the sport without a championship or even a win, Haas is unequivocal. "Ten years, easy. . . . Funding is not a problem." It's a billion-dollar commitment, but there is no uncertainty in the man's voice. As it turns out, the reason for his confidence is just as grounded as everything else about the Haas F1 effort. The global market for CNC machines is expanding rapidly. Haas has a big piece of the U.S. market but very little overseas. By fielding a Formula 1 team, the company gets a marketing presence that "you can't buy," according to Haas. And the tie-in with Ferrari? Let's just say it doesn't hurt and that interest in Haas CNC machines is already on the rise. Long term, the team will more than pay for itself through increased overseas market share.

It's a far cry from the flimsy business plans and outrageous expectations that have been part and parcel of most entries into F1 over the past few decades. But what if this solid, workman-like approach yields unexpected rewards? What if the stars align and Haas F1 actually wins a race next year? What would they do? Who would they send up to get the constructors' trophy? Gene dismisses the question out of hand. "That's pure fantasy. . . . Anyway, I probably won't even be at the race. It would be up to Guenther." Eyes gleaming, Guenther Steiner appears to consider the prospect a bit more seriously.

"Who would accept the trophy? Oh, don't worry about that," he laughs. "We'd find somebody." ■



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ANCESTRY | 1934 ALFA ROMEO TIPO B P3 | 2015 ALFA ROMEO 4C SPIDER

RED BLOODLINE

**EIGHTY YEARS AGO, EUROPE'S GREATEST DRIVER FOUGHT
THE NAZIS AND WON. AS THE MARQUE HE CHAMPIONED RETURNS TO AMERICA,
WE MEET THE CARS THAT BOOKEND THE LEGEND.**

BY SAM SMITH | PHOTOGRAPHY BY EVAN KLEIN



T

HE CRAZIEST THING about one of the greatest drivers in history is that he died in bed. Tazio Nuvolari was born in Italy in 1892. He ran 172 recorded races, many in the forerunner to Formula 1, winning 64 times. He placed second 16 times and third only nine, because, as journalist Ken Purdy wrote, his plan was simple: “Win, or

break up the automobile.” That he didn’t die in the process is remarkable only because most people he drove against did.

Nuvolari’s most storied win came 80 years ago, in an Alfa Romeo, at a time when Enzo Ferrari had no car company and Alfas were some of the fastest machines on the planet. You have to wonder how the marque fell from such heights. World-conquering grand-prix cars. Excellent, affordable street cars after World War II. Then, in the Nineties, microscopic sales and a chicken exit from North America.

Eight decades is a long time in an industry where attention spans are measured in seconds. But the image is intoxicating: battles at Monaco and the Nürburgring, backed by aristocratic wealth and power. Men who raced and bled in genuinely fast machinery when virtually everything that composes modern motorsport was undiscovered land.

Alfa Romeo returned to the United States in 2014. American dealers will now sell you the 4C, a carbon-framed, mid-engine, \$55,495 sports car. They’ll soon stock the 505-hp Giulia, a sport sedan aimed at the BMW 3-series.

But these are new products, and for most people, they might as well come from a new company. They don’t tell you why you

should care, and they don’t let you bathe in the moment when a handful of Italian engineers helped run the world.

So we did the next best thing. I took a heaping deep breath and climbed behind the wheel.

“... his hairy arms straight out, and he would sail through the curves in long, flaring slides... Sometimes he would throw back his head and scream with exuberance, pounding the side of the car like a manic blacksmith.”

THAT’S PURDY AGAIN, on Nuvolari, in 1957. To understand old-world Alfas, you have to understand the kind of men—the man—who drove them.

Most Nuvolari biographies paint in primary colors. He was five-foot-five and compactly built at a time when raw strength helped drivers go faster. He didn’t start driving until 1921, at age 28; over the next 29 years, he was pulled from the wreckage of a car or motorcycle 17 times, walking out of the hospital after each crash. He once won a motorcycle race so encased in plaster that he had to be lifted onto his bike by mechanics. (“His doctor walked away,” Purdy wrote. “You are a dead man if you fall, Nivola,” he said. “I don’t want them even to call me.”) His face bore the scars of accidents.

And oh, how he got those scars. Most people see prewar machinery as primitive—dangerous, if at least slow. But every grand-prix car represents the peak of an era’s knowledge. By the Twenties, the average horsepower of a GP field was into

the hundreds and escalating annually, but relatively little was known about brakes or handling. Fuels, often based in methanol, were toxic and experimental. Some believed period motorcycle racing to be safer, and it probably was—you were more likely to be thrown clear of anything that could crush or impale you.

Add to this a Wild West approach to engineering, driven by a single goal. Take Alfa factory driver Giuseppe Campari: When he died, gruesomely, at Monza in 1933, it was in a car without front brakes, for weight reduction.

Repeat: They pulled the front brakes off to make it go *faster*.

That Nuvolari triumph of 80 years ago says a lot about the era. The man won the 1935 German Grand Prix, on the Nürburgring’s 14-mile north



Tazio Nuvolari and mechanics (left) at the Nürburgring before the start of the 1935 German Grand Prix. Opposite: The 1934 Alfa Romeo Tipo B he drove there, now.





loop. (The track then boasted a 4.8-mile south loop, or Süd-schleife.) The Ring in 1935 looked much as it does today, save a passing interest in not making people dead. Like most early permanent tracks, it was built to replicate the feel of local roads. There was no catch fencing. A low hedge bordered most of the pavement.

To this we bring our man, 42 and an Alfa factory 'shoe in the afternoon of his career. His team, Scuderia Ferrari, is captained by Enzo, already a legend. The stands hold 250,000 spectators, government officials, and an entire regiment of the Nazi army.

German manufacturers were then dominating European motorsport, largely because Adolf Hitler gave them lots of money to try. That funding produced complex machines at the bleeding edge of progress. To the Ring, Mercedes-Benz and Auto Union brought technological behemoths making at least 400 hp each. They were collectively dubbed Silver Arrows. The factory Alfas, a model known as the Tipo B, were built by a small group of—fashion has made the term cringeworthy, but it's the only one that applies—artisan engineers.

The Tipo B had been dominant when new, but by 1935, the design was several years old. The four Auto Unions on the grid were good for 180 mph. The five Mercedes were 5 mph behind. Nuvolari's car was lighter and more nimble but 20 mph slower. The German cars were helmed by giants, men like Bernd Rosemeyer and Achille Varzi.

Nuvolari started second, the order determined by draw. He fell to fifth on the second lap, sixth on the fourth. Six laps later, he was somehow leading, apparently through sheer will. At 11, he pitted for fuel. Mechanics botched the stop. Two minutes and 14 seconds after entering the pits—the Mercedes were refueling in under a minute—the Alfa tore out, now in fifth place. Germans in the crowd were said to have relaxed. Nuvolari was visibly irate.

He used the anger. Over the next four laps, the Alfa sliced past three cars. Nuvolari found himself second, to the Mercedes of Manfred von Brauchitsch. The Mercedes pit gave the signal to press harder. Von Brauchitsch broke the track record. Nuvolari remained glued to his mirrors. The German overrevved his engine trying to stay ahead. Nuvolari railed on the Alfa. On the final lap, von Brauchitsch blew a tire. Nuvolari passed, then won, more than two minutes ahead of the second-place car.

The Germans were stunned. Their win had seemed so assured, the only national anthem on hand was a record of "Deutschland über alles." Legend holds that the song played over the PA was Nuvolari's personal copy of "Marcia Reale." Photographs show him sitting on the deck, grinning. Nazis scowl nearby.

How can you not love a guy who corked off a bunch of Nazis?

EVEN WITHOUT THAT WIN, Nuvolari's car was a tour de force. Tipo Bs were built from 1932 to 1934. Informally known as the P3, the model was the company's third classic-era GP car, after the P1 and P2.

The P1 was a failure, but people remember the P2. A P2 won the first world championship, in 1925, and one killed the great Italian driver Antonio Ascari. A works P2 was also the first car that a young Nuvolari drove at his first Alfa factory test, at Monza, in 1925. (He smirks in photos, brash and confident. The day ended in the hospital.)

The P1 was designed by an Italian named Giuseppe Merosi, for the 1922–1925 seasons. Its 95-hp, 5000-rpm, 2.0-liter straight-six was uncompetitive, but the car was the first GP machine built under Alfa's golden-age benefactor, Nicola Romeo. When Romeo saw the P1 run against 130-hp Fiats at Monza, he said, "The designer is getting old—is finished. To produce a real racing car, we must have the Fiat men."

So they got them. Specifically, a 32-year-old genius named Vittorio Jano. Jano would go on to engineer the P2, but also the postwar Lancia D50 Formula 1 car and Ferrari's Dino V-6, plus a V-8 whose derivations would power the 288 GTO and 360 Modena. In the century-plus history of the automobile, the man is a towering light.

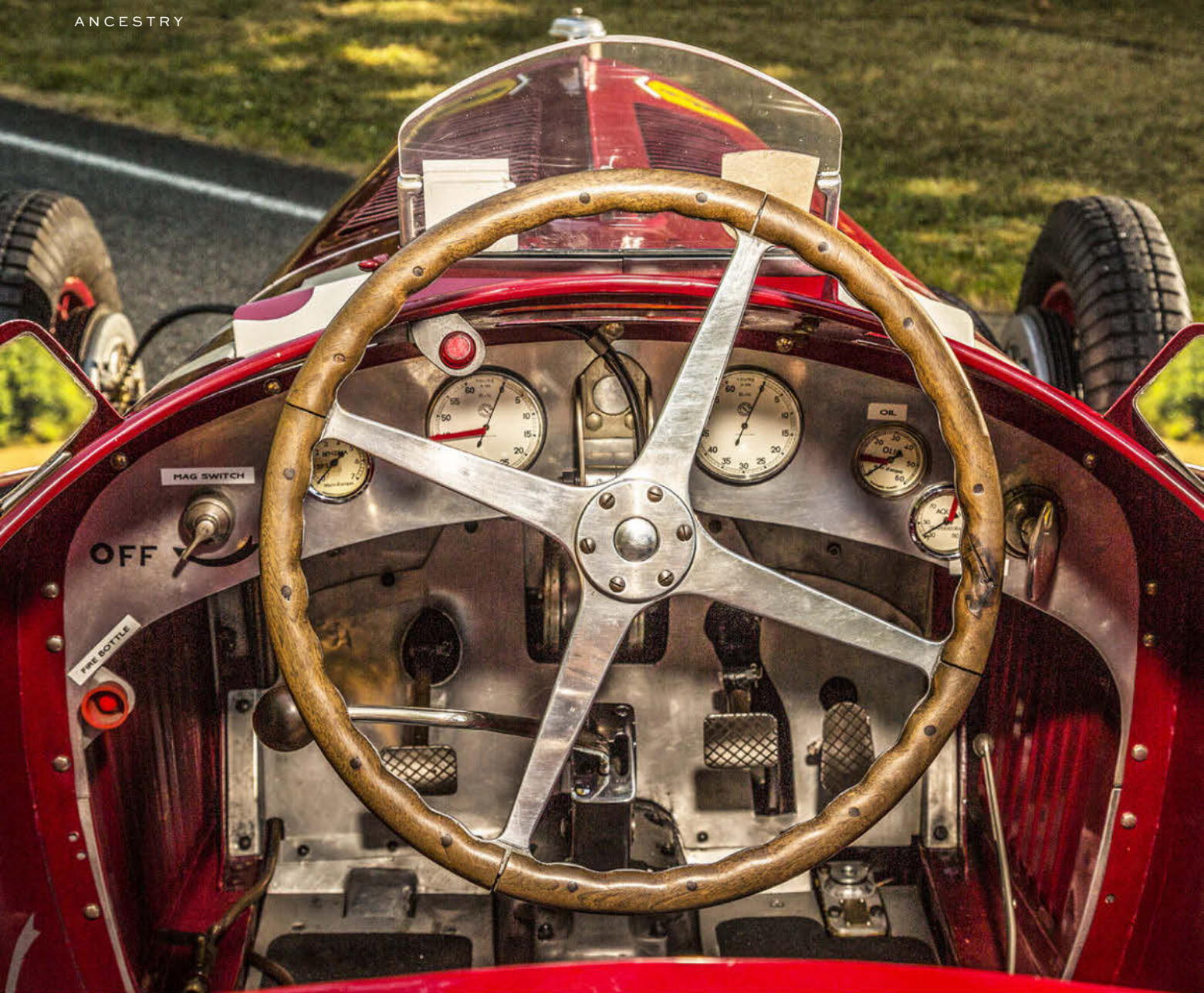
But Jano was Turinese, an outsider. The Alfa men initially regarded him with suspicion. In 1982, Alfa test driver Giovanni Guidotti told journalist Doug Nye about running one of the man's first designs on the dyno:

"We would take maximum power readings by just opening the throttle wide for 30 seconds . . . then *alt!* Because if not . . . she would break. When Jano came in . . . he said, 'No, no, no,' and he took the throttle and opened it wide and hung a weight on it.

"It was around 5 o'clock in the afternoon, and he said, 'Now I'm going home for a bite to eat. Don't touch the throttle, and call me at home about 8 o'clock to tell me how it's going.' We were flabbergasted. At that time, no engine would last very long at full power. But we quickly learned Jano's engines just weren't like



Left: Smith at Pacific Raceways, straight-eight leading the way. The "A" next to the fuel cap stands for "alcohol." Right: Nuvolari in the same seat at the Ring. Note swastika flag in background.



Merosi's or English engines or the French . . . they were perfect, marvelous pieces of design and construction."

For the P3, Jano drew a masterpiece: a twin-cam, twin-supercharged, two-valve, aluminum straight-eight with hemi combustion chambers. It would become one of the most successful racing engines in history, and like every prewar Alfa engine, it defined the car into which it was installed.

Amazingly, this jewel was not new. The P3's eight was essentially a heavy-duty makeover of an Alfa street eight, itself an evolution of a Jano six. It featured monoblock construction—cylinder head and block cast as one piece, with no head gasket. It used two of these blocks, four pistons in each, along with a two-piece crankshaft, literally making the engine two four-cylinders in tandem. A straight-cut gear drive sat between them, sending torque outside the engine and to the left, where it powered two superchargers, one for each block.

This construction helped torsional stiffness, which helped the engine stay in one piece. Because the result was Italian, it was also achingly beautiful. And strong. In early, 2.7-liter form,

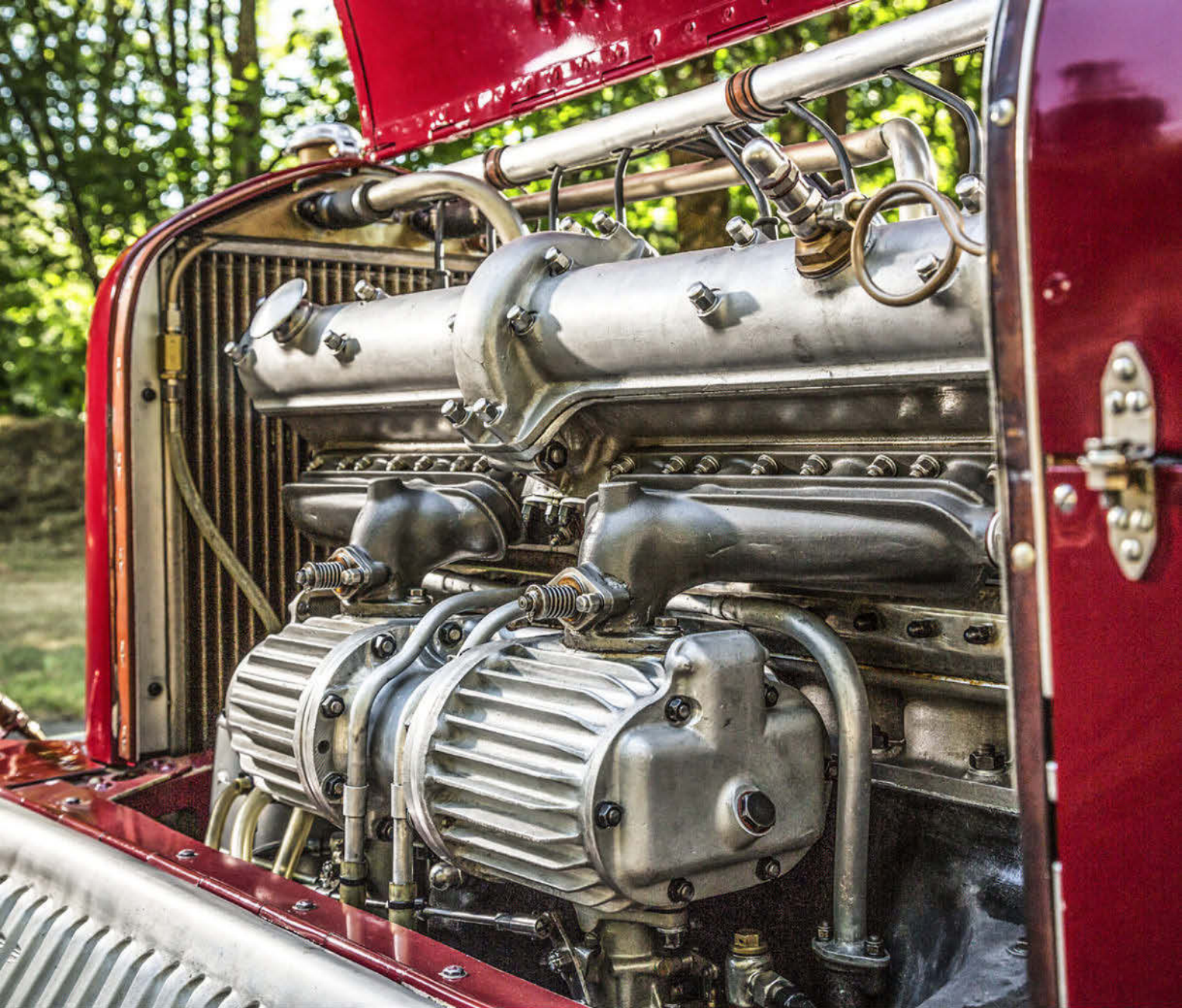
Jano's eight made a reliable 80 hp per liter. In 1935, chasing the Germans, it was a 6000-rpm 3.2 with 89 hp per liter.

More than 280 hp, in a 1550-pound car the width of a lawn tractor. V-8 Fords of the day made 85.

The rest of the P3 was relatively straightforward. Mechanical brakes, later replaced by hydraulic, at a time when Ettore Bugatti refused to trust fluid for stopping. Leaf springs. Friction dampers and a solid rear axle. A rigid front axle, later changed to independent. And coolest of all, a split rear driveline—a small aluminum-cased differential, the size of a handbag, in the cockpit, under the driver's thighs. Two torque tubes angled out of it, one for each wheel. A ring and pinion sat at each hub.

The idea, Guidotti said, "was to prevent wheelspin . . . to make ratio changing . . . relatively easy, and to drop the driver's seat low down, between the shafts. Ha! But when Jano tell our drivers what he plans, Nuvolari snorts through his nose and says, 'No! I don't want to be down in the basement like that, I wanna

The P3 cockpit (above): Redundant twin tachs and a wheel like a manhole cover. **Opposite:** Eight cylinders, two blowers, and 285 hp of baroque art.



be up on top of the job! I want to see where I am going in road racing!' And the original idea was changed, narrowed, and we ended up sitting high on top."

Maybe he was wrong, but you can't argue with the results. Thirteen P3s were built. Until the Silver Arrows showed up, they won almost everything in sight.

"Nuvolari seemed the most awe-inspiring... wheels occasionally lifting slightly in the middle of skids!"—**MOTOR SPORT, 1932**

"I didn't have enough strength to horse them around the curves, like the other drivers. So I worked out my own methods. I let the car go."—**TAZIO NUVOLARI**

"If you open up too quickly... the tail goes all over the place... it'll do about 160 mph with the right gears."
—**BRITISH DRIVER BRIAN LEWIS, 1934**

NUVOLARI DROVE MANY ALFAS. The car he climbed into at the Ring was Tipo B number 50005, a late-run machine updated in period with a widened body and Dubonnet independent front suspension. Its presence at the German Grand Prix is undisputed; shortly after the race, a journalist had the foresight to publish the car's serial number. Nuvolari vouched for it before his death.

Car 50005 is currently owned by collector Jon Shirley. Last July, he met us at the 2.3-mile Pacific Raceways, an old, fast road course near the Seattle suburb of Kent. The track hosted Trans-Am and Formula 5000 cars in the Sixties, and it hasn't changed much since. There are at least two places where an off can put you into a ravine. In summer, the place looks like Northern California, only greener.

Shirley brought 50005, his adult son Erick, and a stack of original Scuderia Ferrari team newspapers several inches thick. Also the car's current caretakers, local specialists Butch Denison and Vinay Nelson. The newspapers read like high-school yearbooks, just with giant pictures of Nuvolari and full-page,

hand-drawn ads for Weber carburetors.

Dennison and Nelson wheeled the car out of its small trailer. “The thing that amazes me,” Dennison said, hand on a tire, “is how anywhere on this car, just any detail, you can find something beautiful.”

Erick Shirley did a few installation laps to warm the engine. Watching him tear by, I was reminded of the week before, when I tried to explain the Tipo B to my wife, over dinner.

“It’s a damn Renaissance painting,” I said. “It predates the idea that a chassis should be rigid to keep the wheels on the ground. It predates anything you’d call brakes. It predates the idea that racing drivers are ordinary people. And they sold the same basic thing for the street. It *matters*.”

“Sounds really cool,” she said. “More pasta?”

I sighed. If only she’d been there to see it. You cannot climb into an Alfa GP car without accepting a kind of filmic ridiculousness: You mount the thing like a horse, a foot on the rear leaf spring, threading a leg over each side of the differential. Seated, your torso is halfway out of the car. Motorcycles *do* seem less dangerous. You are intimately aware of where you end.

The methanol feed valve below your leg gets turned on. Someone gives the slender chrome knockoffs a final whack with a lead hammer. Their centers are the car in a nutshell: “Alfa Romeo” in filigreed script, needlessly and wonderfully flamboyant. The slender, arm-length chrome shifter snakes up between your legs in a manner that reminds you of dirty jokes. The three-speed dog gearbox was originally a four-speed, but first gear’s gate is blocked off; the gear was removed in period to make room when others were enlarged for durability.

Nelson hands me the car’s modern lap belt. I stare at it dumbfounded, surprised. I almost leave it unbuckled.

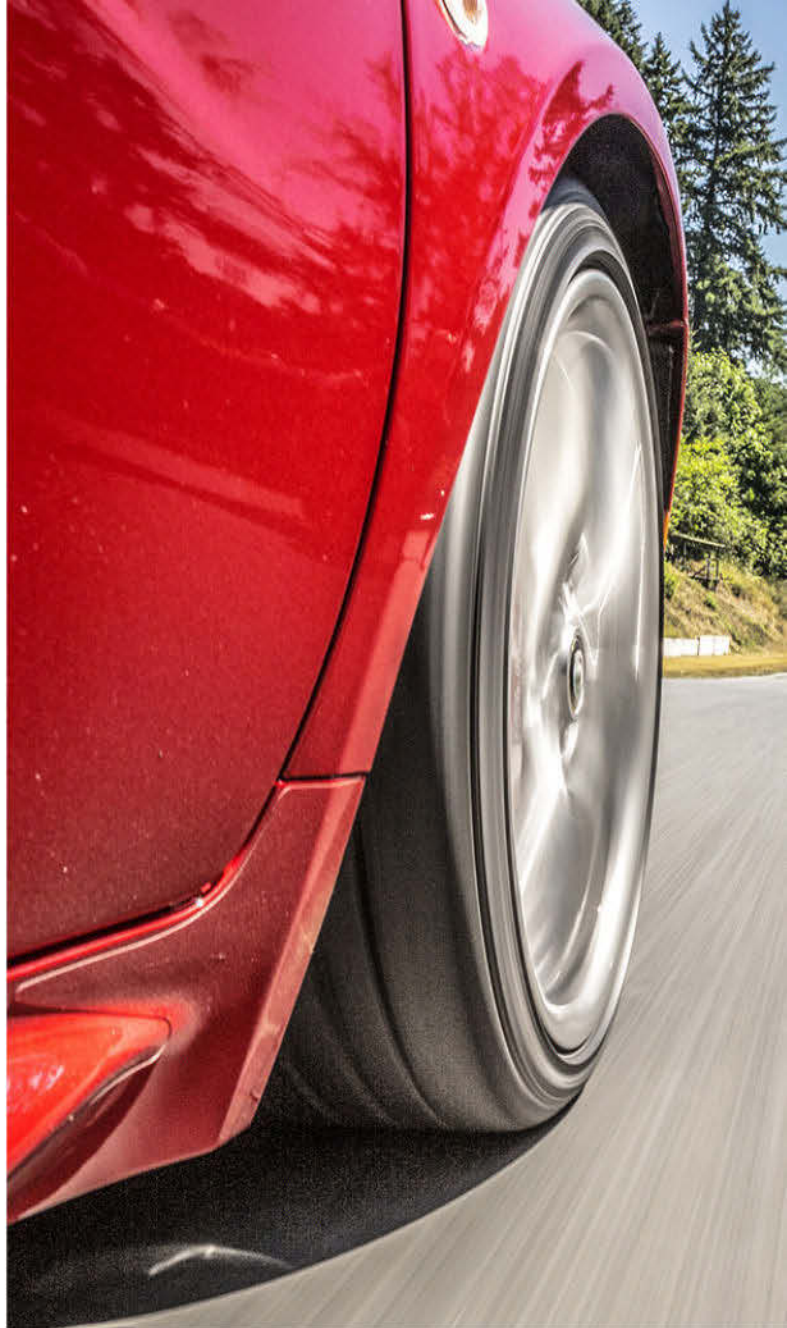
A Tipo B can be hand-cranked or started with a plug-in starter, but Dennison suggests a push-start, popping the clutch, for maximum effect. I don’t argue. The car bursts alive, a basso, like a dirt bike the size of the moon. (“Most people who hear it from across the shop,” Dennison said later, “ask, ‘Whose Chevy you running back there?’”)

And then I’m on my own.

The wood-rimmed wheel is unavoidable. Pretend you’re holding a newspaper open to read it. Now move your hands an inch closer to your chest, replace the paper with a steering wheel but don’t change your arms, and think about drifting. Your gut reaction is to call the position tractorish, but that would simultaneously elevate every tractor ever built and insult one of the most elegant weapons made by human hands.

There are two clockwork tachometers on the dash. Each one is driven off an engine cam, for redundancy; their short cables meet the firewall inches above your knees. In most old cars, a chronometric tach is spastic, a beat behind the engine. The P3’s glide like the sweep hand on a Rolex. Your eyes land on them and get stuck.

I would be a tone-deaf heathen if I didn’t call the engine



astounding. If it had been invented solely to make noise, there would be shrines to it in Rome. The sound is straight-eight incarnate—a six-cylinder’s ripping snarl crossed with the crackling blat of a Detroit V-8. You get meaty torque down low, but also a surprising flexibility and eagerness to rev. There is wheelspin in first gear, second, even the top of third if you’re sliding, because the tires aren’t so much a device for grip as the punch line to a joke about the lack of it.

And above all, more noise. The cockpit serves as an aluminum megaphone, funneling three or four different gear whines and a funk of oil to your face. It combines to help you forget that you just hit 4500 rpm in third

(more than 120 mph, based on gearing), that the diff is whirling away near your testicles.

How do you describe a romance? Maybe you start with methanol fumes. I stuck my nose a foot from the pipe when Erick first lit it off, because I knew I might not have another chance.

1934 Alfa Romeo Tipo B P3

POWERTRAIN 3.2-LITER
TWIN-SUPERCHARGED I-8,
285 HP; RWD, 3-SPEED MANUAL
WEIGHT 1550 LB
TOP SPEED 160 MPH (EST)



*Think of an old pickup in snow.
Now give it bicycle tires and straight pipes and pin the Mona Lisa to the hood.
Play deafening opera in the background.*

It smelled like bad wine and dying brain cells. Or do you focus on the chassis? Books claim that Nuvolari invented drifting, but the P3 makes a certain technique obvious. Its frame is little more than two steel rails. They're flexible enough to serve as suspension, something I notice leaving the paddock, when the car springs onto the track in an odd little two-phase bop.

Past the pits, flying over a bumpy piece of pavement, I prime to catch a jumping wheel. But nothing happens, just a few skips from the tail. The steering is quick and the wheel close enough that you correct a slide by pulling down and leaning your torso.

The Alfa turns in slow, nose wandy and distant; if modern cars have you thinking about tires, here, you think about the frame. You can feel it twist into a corner, winding up. Once it's set, you don't change much, just accelerate. Which the tires always seem to resent. The brakes don't do a lot, and heat makes them do less. Your foot consumes what feels like feet of distance—it's probably a few inches—before the car slows. Understeer and oversteer are blips, rarely steady-state.

On a smoothish track, it was work. In an open-road race, it must have sapped men to husks.

It is easy to get wrong. Drive ham-fisted, and the frame binds, the car lock-kneed, all compliance gone. The seat buzzes as the inside rear wheel spins. The P3 doesn't have the kind of chassis you can pick apart to analyze, so you just slow down, try again, and keep your foot in it.

Put another way: Think of an old pickup in snow. Now give it bicycle tires and straight pipes and pin the *Mona Lisa* to the hood. Play deafening opera in the background, with lyrics about top-heavy women of breeding. That equation does not want your modern algebra of pinpoint driving. It only wants your balls.

So you go freehand. This weird, driftly improv between throwing the Alfa like a kart and eggshell-walking into corners, smooth and patient. More pace and forgiveness when the car's up on step. And if you are me, you find yourself merrily yawing up the hill on Pacific Raceways' back straight, purposely ignoring nearby trees, feeling as if you can see deep into the black



hearts of those people who say that machines are not emotional things. And you know that they are rank-and-file dipheads without a grain of art in their lives, and you want to take this living red fireball and go penetrate their living rooms at full tilt in top gear and watch them scatter like pigeons and maybe make the family dog leak all over the carpet from abject and unspeakable terror.

Also maybe just use a P3 to get ice cream on weekends, because wouldn't that be a hoot?

No modern car could live up to that. A 2015 Alfa 4C Spider certainly doesn't. We brought one to Kent for symmetry; it felt a lot like the 4C coupe, which is to say, nothing else on the market. Carbon tub, loud everything, unpredictable turbo lag, heavy and distant steering. Lots of sideways, not always when you want. It reminded me of high school: fantasism, with an undercurrent of misery.

But pulling into the pits, I was reminded of every postwar Alfa I've met. Giulia Supers, Spiders and GTVs, Milanos and 164s. Those cars all demanded that you stay ahead of them, but

there was a delicacy to their controls, like a good Ferrari. They have little in common with a 4C and a Tipo B save a sense of urgency. Each hints at the notion that fast cars are best when they ask something of you. That machines, like any human creation, are defined by their stories, only so important as what you do with them.

Nuvolari was just 60 when he died. His lungs had given out, poisoned by fumes from the thing he loved. He was still winning races in his final years, though he had grown too weak to climb from a car without help. They buried him in Mantua, his birth village, with a steering wheel in the casket.

But Alfa Romeo remains alive, and with it, a thread of the man. Also a hundred other men, Ferrari and Jano and the rest. The legend they helped build gives warmth to a thing otherwise cold, makes a flawed little carbon-fiber sports car more than the sum of its parts.

A piece of a slower moment. Not necessarily a better one. But perhaps dappled with a little more beauty. ■

2015 and 1934: Time, power, and two different shades of red.



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THE FIRST DRIVE | 2017 MERCEDES-AMG C63 COUPE

NO COMPROMISING

STILL A LOVABLE BRUTE, BUT IT'S LEARNED SOME MANNERS.

PHOTOGRAPHY BY DEAN SMITH



WE SAVORED EVERY MILE and every snarling backfire in the old Mercedes C63 AMG Coupe, but here's the brutal truth about a brutal car: It was compromised. The outgoing two-door was a hastily contrived, late addition to the previous-generation C-class lineup and suffered for it. Can you imagine another carmaker charging more than 60 grand for a coupe with sedan-style, framed-door glass? The old C63 coupe also performed just like a C63 sedan, which wasn't quite enough to go head-to-head against purebred two-door sports cars. Yes, it had that unforgettable exhaust note, and it was always up for some sideways fun, but it never felt as well conceived as the best competitors.

With the new C63 coupe, AMG gets serious. Visually, technically, and dynamically, the coupe is distinct from its four-door brother—and is superior by almost every measure.

It's also, shall we say, girthier. The C63 coupe is 1.5 inches wider than the AMG sedan. The track is 1.8 inches wider than the AMG sedan in the rear and an inch wider in front, partly due to

meatier tires. The rear suspension is mounted to the body with stiffer bushings. This widening necessitated plenty of metal massaging. The C63 shares only its doors, roof, and trunklid with the standard coupe. Its booty is half Kardashian, half ur-Quattro and as expansive as the rock-coated vistas surrounding the Ascari race resort in the south of Spain, where we've come to play.

The track itself is as green and manicured as Gleneagles, a stark contrast to the rugged landscape that surrounds it. If you can't afford \$219,000 for a superior family membership, the good news is the public playground right outside is even better and won't cost you a dime. The road to Ronda is famous, and on a clear run, it's a blast of sustained right-pedal action and fast, wide curves, switching to tighter technical sections that tax car and driver in equal measure. The nearby route heading to El Burgo is occasionally so narrow, you'll suck in your gut as you come within a Rizla of trading door-mirror paint with cars coming the other way.

In other words, this is the sort of place where you want a real sports car, not an overweight

Mercedes-AMG C63S Coupe

PRICE \$77,000 (EST)
POWERTRAIN 4.0-LITER
TWIN-TURBO V-8, 503 HP,
516 LB-FT; RWD, 7-SPEED
AUTOMATIC
0-60 MPH 3.8 SEC
TOP SPEED 180 MPH
WEIGHT 3850 LB
ON SALE SUMMER







AMG's C63 coupe shakes its booty on the road to Ascari, north of Spain's Costa del Sol.

luxury coupe. Fortunately, the C63 feels like the former. The 4.0-liter twin-turbo V-8, same as in the sedan, is thunderously strong and sufficiently lag-free so that no straight is wasted. Opt for the Performance exhaust so you can bounce angry engine noise off the rock face that crowds the road. It's easy enough to see out of, so that you can make those hair-raising judgment calls around near-blind corners. Most important, it has enough grip to make every one of its horses count when you climb all over the gas.

Indeed, the C63 coupe has the kind of traction a C63 sedan driver wouldn't believe—at least until the tires get too hot. You feel the rear tires edging out of line slightly, and with stability in Sport or completely off, you'll still have to contain—or revel in—the oversteer. But compared with the sedan, it feels more precise and more neutrally balanced. It wants you to have fun, but not to lose precious tenths for the sake of it. That makes the C63 coupe the best of both worlds and better-controlled than any 3850-pound car has a right to be. Don't worry: Lurid, tire-smoking power slides are still on speed dial.

Mercedes USA expects that almost every buyer will reconcile him- or herself with the likely \$8000 premium and sign up for the C63 S model. It comes with 503 hp rather than 469 hp, as

well as larger front brake rotors, dynamic engine mounts, and an electronically controlled limited-slip differential. It also has a fifth setting, Race, on the rotary dial that selects drive modes.

Even with that drive mode, the C63 S isn't entirely in its element when we lap Ascari. The steering feels quicker and more direct than before but still doesn't communicate as well as we'd like. The turbo engine is plenty responsive, but the seven-speed planetary automatic lacks the instant response of the BMW M4's dual-clutch transmission. And there's no getting around the fact that this is a big car, bigger in every dimension than an M4, and a substantial 300 pounds heavier.

In reality, afternoons at Ascari or any racetrack don't factor much into the C63 coupe formula. Hopping onto the freeway at the base of a challenging, rock-lined descent, we flick the Dynamic Select control to Comfort and our rowdy ride settles into a cossetting cruise. An M4 seems about as refined as a Philadelphia Eagles fan by comparison. A disappointing murmur of wind noise spoils the solitude, but otherwise, the C63 feels every bit like a luxury car. The richly detailed interior reinforces that sensation. Other brands' coupes major on performance, some on luxury. But none melds the two as successfully as the Mercedes-AMG C63 Coupe, a genuine 24/7 supercar.

—CHRIS CHILTON

MORE THAN A LITTLE MERCEDES

DEVELOPED ON THE SAME PLATFORM AS THE MERCEDES GLA,
THIS NEW INFINITI DOESN'T HIDE ITS BENZ BONES.

LISBOANS ARE FURROWING their brows at the Infiniti QX30 crossovers driving in a caravan through their streets. Against the backdrop of centuries-old abbeys and limestone towers, this very modern-looking crossover must seem a little strange.

The locals don't know the half of it. The QX30 comes from an oddball partnership between Renault-Nissan and Daimler. French, Japanese, and German companies collaborating on a car for a mostly American brand. The chances of something getting lost in translation were pretty high.

The stylists, at least, speak Infiniti's language. Cues on the QX30 echo the sporty FX crossover (called QX70 these days—who knew?). This skin fits almost perfectly over the bones of the Mercedes-Benz GLA: It's virtually identical in wheelbase and width.

More than a little Mercedes shows inside. The window controls, steering wheel, door locks, gauges and digital readouts, stubby automatic transmission shifter, pedals, light controls, and HVAC switchgear—including a recirculation button featuring the outline of a B-class—all come from the Benz parts bin. An Infiniti-specific infotainment system dominates the center stack, replacing the tacked-on-looking Mercedes unit.

The cabin seems bland compared with the rakish exterior, but materials feel upscale, nicer than what's on the GLA, actually.

The only powertrain Americans will see is Mercedes' 2.0-liter, 208-hp turbo four paired with a seven-speed dual-clutch automatic, the GLA's standard setup in the States.

No surprise, the QX30 drives a lot like the GLA, which is to say, not much like the fast and fun QX70 crossover. It jogs, but doesn't run, to 60 mph in about six and a half seconds. The optional all-wheel-drive system, in everyday driving, sends most of its power to the front wheels. (There will be a front-wheel-drive version, including a variant with a lower suspension.) The transmission is quick to upshift in the name of fuel economy but will downshift and engine-brake aggressively in sport and manual modes. There's no word yet on an AMG-style variant, which might burnish Infiniti's performance credentials. Right now, the best thing about the way the QX30 drives is that it's quiet—more hushed at highway speeds than the GLA.

This experiment in multiculturalism isn't nearly as jarring as it might have been. Those who want Infiniti to build Japanese BMWs will be let down, but actual crossover buyers might like this swankily styled Mercedes.

—JEFF JABLANSKY

Infiniti QX30 AWD

PRICE \$35,000 (EST)
POWERTRAIN
2.0-LITER TURBO-
CHARGED I-4, 208
HP, 258 LB-FT; AWD,
7-SPEED AUTOMATIC
WEIGHT 3450 LB
ON SALE SUMMER



THE FIRST DRIVE | 2016 MINI CLUBMAN

A MINI THAT ISN'T

THE CLUBMAN IS A ROLLING OXYMORON. SOMEHOW, IT STILL CHARMS.



HERE'S THE GORDIAN KNOT the Mini brand must untie if it wants to reach a bigger audience: It is defined by being miniature—it's right there in the name—yet a leading reason people pass on its cars is that they are too small. Minis must become bigger yet somehow remain Minis. Is that possible? The answer, like the new Clubman's appeal, lies in the details.

Also, in the semantics. You could say the Clubman is 25.5 inches longer, 1.3 inches taller, and 4.4 inches wider than BMW's first Mini Cooper, and that it's slightly longer and wider than the Countryman crossover. Or you can say it's roughly the size of a VW Golf, which is universally regarded as a small car. The increase yields 47.9 cubic feet of cargo room with the seats folded. Enough room, Mini claims, to fit a washing machine, although not quite as much as you'll find in the back of a Golf (again, semantics). Rear barn doors, common on vans but not compact cars, make it possible to load such items. The rear-hinged third door on the previous Clubman, although clever, was not sufficient for grown-up passengers or those loading a child seat, so the new model gets four passenger doors.

Like Minis of all sizes, the Clubman embraces kitsch. Mini logo puddle lights are standard. The glove box and cup holders wear tartan inserts. The huge center instrument pod invites you to "motor hard" when the car's in Sport mode and can be

optioned with a glowing surround that changes colors according to engine rpm, temperature, or radio volume. Call it campy, but we think it's genuinely fun.

Fun also remains a key aspect of the driving experience. That's true even when the 3150-pound Clubman is equipped with the 1.5-liter three-cylinder, the most entertaining of the lineup. With 162 lb-ft of torque from 1250 rpm, it makes quick work of stop-and-go traffic. No throttle modulation needed, it just smoothly engages and zips ahead. Open roads demand the 2.0-liter, 189-hp four-cylinder.

All Clubmans have direct steering and available sport seats. A six-speed manual is standard on the Clubman, as it is on all Minis. Consider it mandatory, even though the automatic transmissions—a six-speed on base cars and a choice of eight-speeds on S models—aren't bad.

So, the Clubman feels like a Mini and drives like a Mini. And, as you can certainly see, it looks like a Mini. If it's no longer miniature, well, neither are you. You have a family, pets, and a house, and occasionally it's your turn to drive everyone to lunch or, God forbid, haul home a washing machine. But that doesn't mean you can't have fun. You can still shift your own gears, paint a flag on your roof, and stand out from everyone else on the block. To that end, the Clubman is absolutely a Mini, and you might remain a Mini buyer.

—W. CHRISTIAN WARD

Mini Cooper Clubman

PRICE \$24,950
POWERTRAIN
1.5-LITER TURBO-CHARGED
I-3, 134 HP,
162 LB-FT; FWD,
6-SPEED MANUAL
WEIGHT 3150 LB
ON SALE NOW

KIND OF FUN

FOURTH GENERATION OF THE HYBRID THAT CHANGED THE CAR WORLD.

I KNOW WHAT YOU'RE THINKING. A Prius. In *Road & Track*. Why? Well, the Prius is a big deal. Toyota has sold 5.26 million of them since 1997. It's the main reason carmakers from Chevy to Porsche now offer gas-electric hybrids. It's the reason most people even know the term "gas-electric hybrid." But there's another reason: The fourth-generation Prius is actually kind of fun.

By "fun," we don't mean "pretty." You'll have no problem telling the new Prius from the old, but that's because the 2016 car is significantly uglier. Those weird rear quarters ease through the air, though. The new car's 0.24 coefficient of drag (down from 0.25 Cd) is among the lowest of current production cars. Beneath the skin lies the first example of Toyota's new global platform.

We also can't say the Prius is quick, with a claimed 9.8-second 0–60-mph time. The Atkinson-cycle four has new intake and exhaust systems and shifts through a revised CVT but still complains loudly when you ask a lot of it. Toyota finally made the switch to lithium-ion batteries, which are under the rear seat, rather than in the trunk. (The base Prius Two still gets a nickel-metal hydride battery.) Thread the Prius down a twisty road and the steering precision and body control will blow the mind of anyone who's driven the old car. The steering is almost an entire turn quicker lock-to-lock, so you can flick through a left-right transition without having to dislocate your shoulders. The car

is slightly longer but rides lower, and you sit lower inside. It still leans like a MotoGP bike in hard turns, and the eco tires remain as grippy as a grandma's handshake, but the Prius feels happy on these roads. Instead of willing the road to straighten, you almost find yourself disappointed when it does. The Prius also contentedly cruises on the highway, where its new independent rear suspension provides a far more relaxed ride than before.

The cabin reinforces the real-car vibes. Thicker under-floor insulation, sound absorbers in the dash, and a laminated windshield cut decibels. Upper trims get noise-killing front windows, too. The lower cowl and bigger rear window massively improve the driver's outward vision. For all these improvements, the Prius doesn't make any quantum leaps in its primary mission. Preliminary fuel-economy figures tick up to 54/50 mpg city/highway from 51/48 mpg. EV capability is still modest—do anything more than breathe on the gas pedal and the engine chimes in. Hypermilers can go for the new Eco grade, which

has better aerodynamics and loses 65 pounds, in part by ditching the spare tire to post billboard-worthy estimated fuel economy of 58/53 mpg.

Even in this era of cheap gas, efficiency is the primary reason to purchase a Prius. But Toyota seems to realize it can't be the only one. The Prius still isn't our kind of car, but it's a much better one.

—CHRIS CHILTON

Toyota Prius Three Touring

PRICE \$28,935
POWERTRAIN
1.8-LITER I-4 HYBRID,
121 HP, 105 LB-FT;
FWD, CVT
WEIGHT 3100 LB
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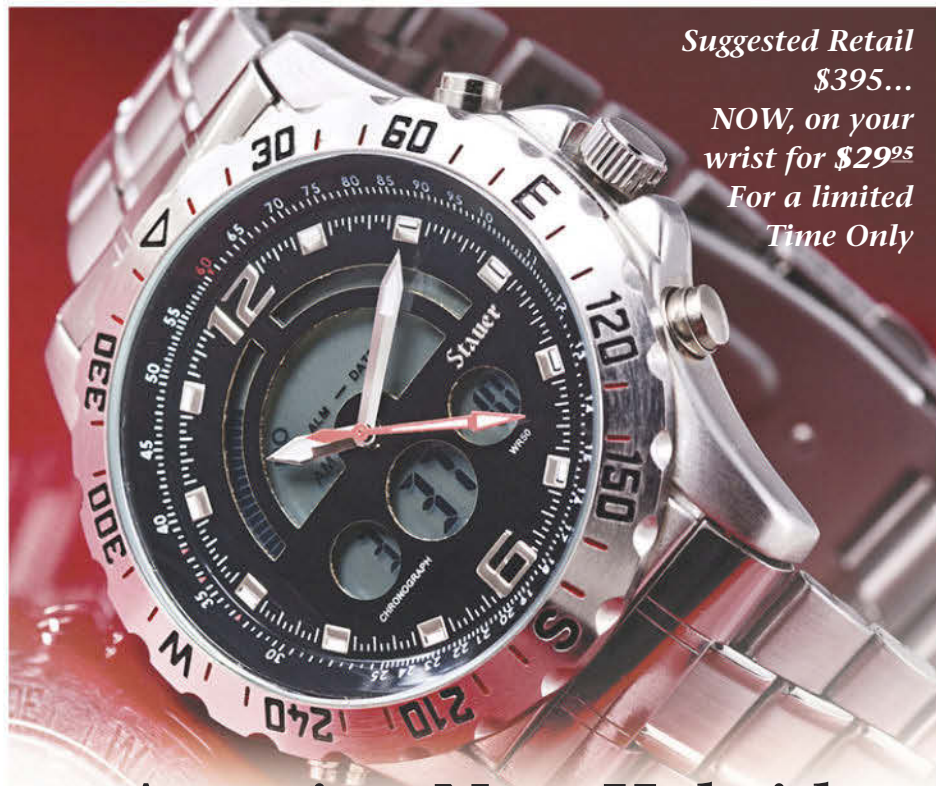
The experts at **Road & Track**, who have tested every version of the **Mustang**, **Camaro**, and **BMW M series**, have created three stunning retrospectives celebrating the **past and present** of these incredible cars. Featuring sensational photography throughout

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We originally priced the Stauer **Compendium Hybrid** at \$395 based on the market for advanced sports watches... but then stopped ourselves. Since this is no ordinary economy, we decided to start at **92% off** from day one. That means this new technological marvel can be yours for only \$299⁹⁵!

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Continental Eagle Sport All-Season (96 Speed Rated)	2	99%	7.6	8.8	8.9	8.2	8.8	8.2	6.2	7.4	7.1	8.6	8.3	8.1	46,172,520
Continental ExtremeContact DWS	3	97%	8.4	8.7	8.9	8.9	9.1	8.9	7.3	6.0	8.3	8.4	8.2	8.2	987,796
Continental Eagle F1 Asymmetric All-Season	4	96%	6.6	8.8	8.8	8.1	8.5	8.5	7.7	6.9	5.7	8.1	8.2	8.4	238,816
Continental ExtremeContact DWS All-Season (95 Speed Rated)	5	95%	7.4	8.6	8.6	8.8	9.1	8.6	7.1	5.6	5.8	8.8	8.8	7.7	1,640,945
Hankook Ventus S1 (95 Speed Rated)	6	94%	7.0	8.0	8.7	8.4	8.8	8.4	7.6	6.4	6.2	8.0	7.1	8.2	5,578,303
Continental ExtremeContact DWS	7	94%	6.1	8.0	8.3	8.3	8.7	8.4	8.5	7.7	7.0	7.0	7.4	6.4	246,300
Yokohama ADVAN Z.R.	8	94%	7.8	8.5	8.6	8.8	9.0	8.7	6.6	5.3	5.8	8.5	8.3	7.9	4,067,895
Pirelli P Zero (95 Speed Rated)	9	92%	7.7	8.3	8.3	8.6	8.9	8.8	6.7	5.3	5.7	8.4	8.2	7.7	23,158,180
Pirelli P Zero (95 Speed Rated) All-Season	10	92%	6.7	8.0	8.1	8.6	8.8	8.6	7.1	6.2	6.1	8.0	7.4	7.3	9,381,424
Michelin Pilot Sport A/S 3 (95 Speed Rated)	11	92%	7.2	8.8	8.9	9.0	9.2	9.0	6.1	4.7	4.6	8.3	7.8	7.5	1,856,329
Bridgestone Potenza S001 (95 Speed Rated)	12	89%	6.8	8.8	8.8	8.8	9.0	8.9	9.0	4.6	4.7	8.0	7.8	8.1	3,980,040
Continental ExtremeContact DWS	13	88%	7.4	7.7	7.8	8.1	8.3	8.1	6.4	5.3	5.4	8.1	7.9	7.3	40,058,066



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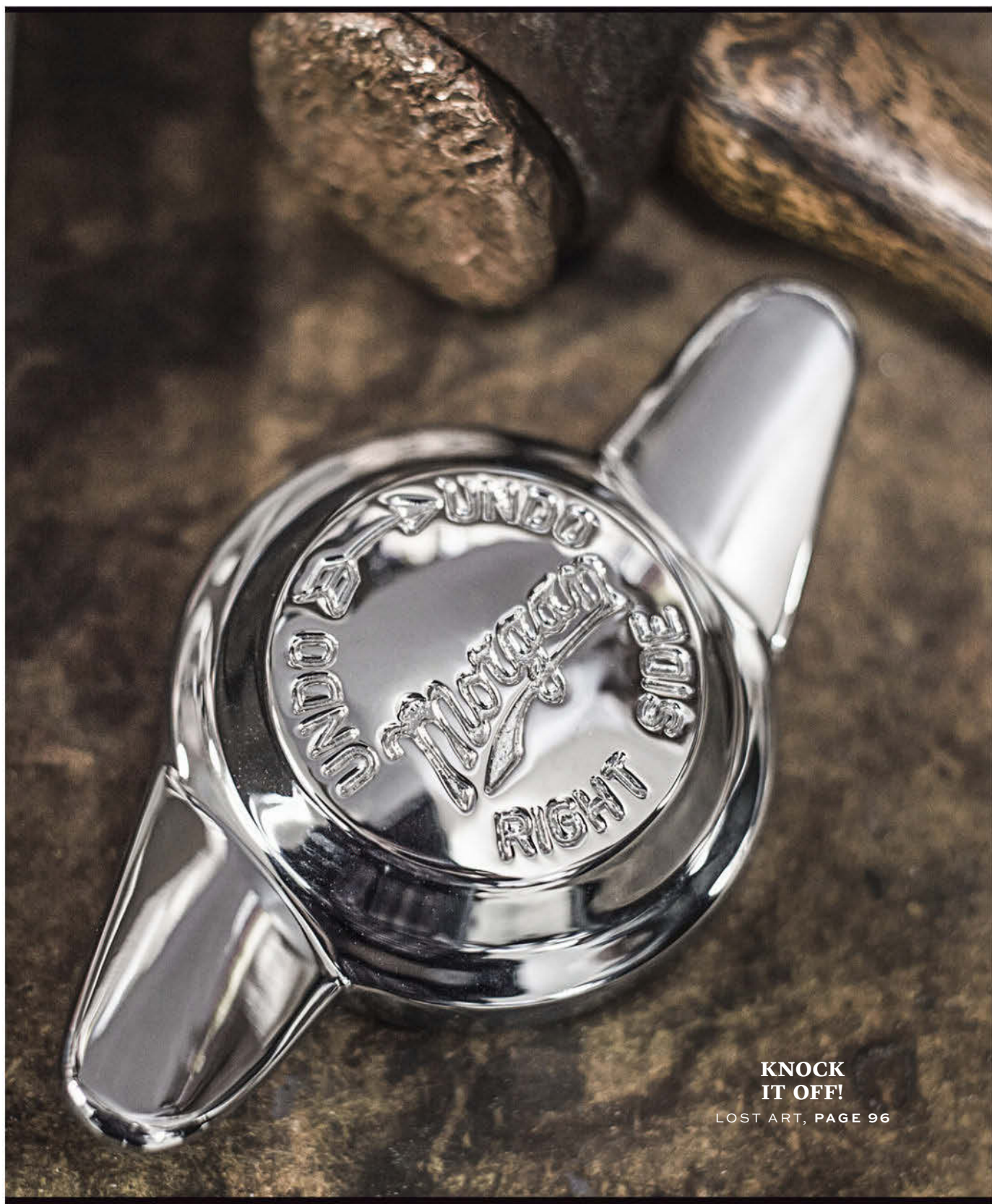
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**KNOCK
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LOST ART, PAGE 96





LOST ART BY PETER EGAN

THE SMITING OF THE KNOCKOFFS

IF YOU BUY AN OLD SPORTS CAR WITH WIRE WHEELS AND THOSE CLASSIC RUDGE-WHITWORTH CENTER-LOCK HUBS, YOU MAY NEED A BIGGER HAMMER.

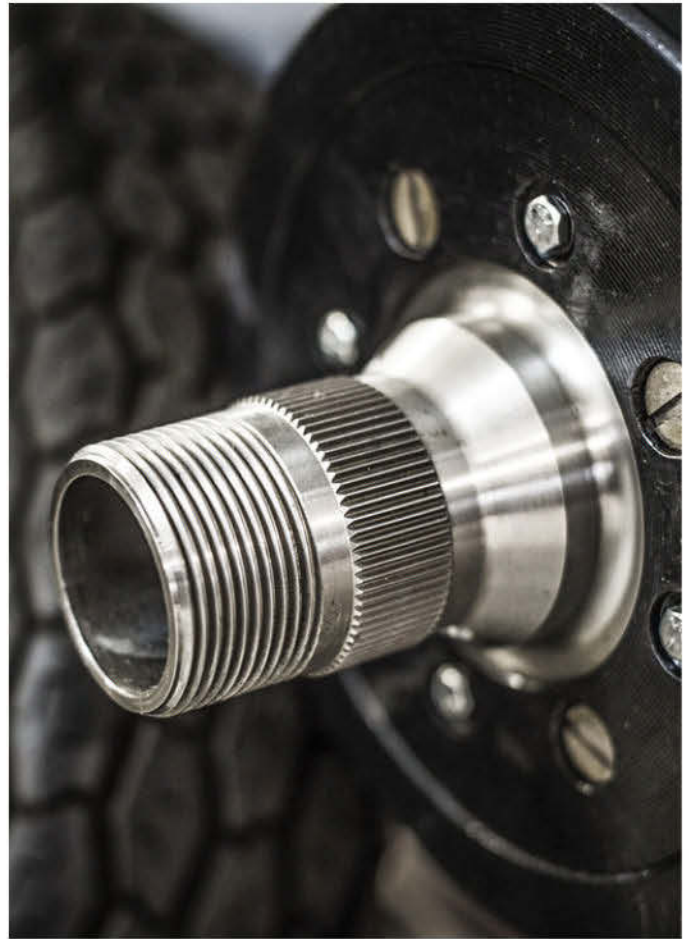
There are people who love puzzles and brainteasers, but I am not one of them. I hate having my brain teased. It's already suffered enough. So when I ordered a new set of chromed knockoffs for the wire wheels on my 1965 Morgan project car, I eschewed the original bare variety and got ones with writing and instructions all over them. They arrived today, and they're beautiful.

There's "Morgan" script across the center, with directional arrows that say "undo" to show you which side to smack when you remove a wheel. They're also marked "right side" and "left side," so you don't mount them on the wrong side.

As an aging British-car buff who occasionally puts the Grape-Nuts box in the fridge, I find this idiotproofing a great solace. But if you've never owned a vintage sports car, you may be wondering what this directional fuss is about. Let me explain:

The traditional wire-spoked wheel is typically restrained from flying off into space (or a cornfield) by something called a center-lock hub, a device patented early in the 20th century by Rudge-Whitworth, a bicycle (and, later, motorcycle) manufacturer. It permitted a then-miraculous quick change of flat tires simply by sliding a wire wheel onto a tapered splined hub and securing it with a threaded cap. "Ears" were later added to the cap to make it easy to hammer it on and off without using some huge oddball wrench.

Sounds simple, but carefully matched inner and outer tapers were needed to center the wheel and lock it against the hub so the drive splines didn't take a beating. The outer taper also fitted inside a groove in the cap so that "epicyclic" movement (see Ptolemy's treatise on hula hoops) of the rotating hub would tighten the spinner. I'm told by engineer friends that an ever-moving stress point on the outer taper (with the car weighted) causes the male hub to squeeze the female knockoff opposite the direction of rotation. But I like to think of it, for my own sanity, as a smaller inner circle (wheel hub) rotating faster than a larger outer one (loose knockoff), which tends to drive the treads home. In any case, the hubs on the left side of the car require standard right-hand threads and those on the right to use ►



Threaded knockoff caps (and nuts and bolts) from Egan's Morgan. Ears on the center caps make changing a tire easy.

“backward” counterclockwise threads. These thread directions are reversed on center-lock hubs on the Lotus Elan SE (for instance), where the knockoff

fits inside the wheel center, but most conventional knockoffs are loosened by hammering down the forward ear on both sides of the car. Hence all the markings and arrows on my Morgan spinners. Hammering them in the wrong direction—or mounting your hubs on the wrong side of a car—can cause big trouble. Wheels come off; prominent citizens go missing.

By 1912, this clever quick-change system was all but universal on the GP grids of Europe, and by 1922, Carlo Borroni was building his own exquisite hubs and wire wheels in Milan under license to Rudge and selling them to the great racing teams—Alfa, Auto Union, Mercedes, etc. Wire wheels remained the standard in sports-car and F1 racing until the early Sixties, when stiffer aluminum and magnesium wheels came along. Knockoffs continued to be used on racing cars with “solid” wheels, such as the Cobras and Ford GT40s. On the street, however, the spinners became emasculated and lost their distinctive and useful knockoff ears to safety regulations in the U.S. and Germany in the late Sixties, becoming “wrench-offs.” (Apparently, legislators had been traumatized by the slice-and-dice hubs on the chariot in *Ben-Hur* and James Bond’s Aston.) To many enthusiasts, though, knockoffs and wires still define what a proper sports car should look like.

So it was no coincidence that my first sports car—a 1960 TR3

bought in 1967—had them, along with the obligatory leaky side curtains and primitive door latches. My current Morgan also shares these three key elements, so you can see, I’ve learned exactly nothing in 49 years. Actually, this is my fifth British sports car with knockoffs, and I still have my original, massive three-pound Thor copper knockoff hammer—which looks like something a Neanderthal would use to kill a mastodon.

Knockoff hammers themselves have considerable charm and are probably collectible at this point. Mine is a bit heavy, because I use it for bludgeoning all kinds of things in my workshop, but they also come in lighter weights with lead and rawhide tips, which are easier on virgin chrome. So are the shot-filled, plastic dead-blow hammers, but they look wrong. In an onboard tool kit, a two-pound lead hammer works nicely.

And how hard must one smite those knockoff ears? Some say gently, because, after all, they’re self-tightening. But I’m among those who believe you should strike just hard enough to get a “solid sound,” but not so hard that all the dried cow manure falls off the bottom of your car.

However you do it, there’s nothing quite as satisfying as smacking a knockoff. It feels like an ancient, embedded human prerogative, like releasing an arrow from a longbow or skipping a stone across a lake. If you’ve never owned a car with knockoffs, you probably owe it to yourself and your ancestors to get one. Knockoffs provide both tactile involvement with your car and participation in one of the sport’s most sacred rituals. Without which, as Jim Morrison would say, true sailing is dead. ■

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61282 shown

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69564/69955

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Customer Rating

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Customer Rating

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SUPER COUPON

LOT 63079/69729
63080/69976 shown

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\$29999 comp at \$469

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4000 PEAK/3200 RUNNING WATTS 6.5 HP (212 CC) GAS GENERATORS

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SUPER COUPON

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61840/61297/66146

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Customer Rating

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SUPER COUPON

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SAVE \$50

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Customer Rating

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SUPER COUPON

LOT 68498 shown

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\$649 comp at \$14.97

Customer Rating

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SUPER COUPON

LOT 69075/69128
69076/69129 shown

SAVE \$189

\$29999 comp at \$469

Customer Rating

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SUPER COUPON

LOT 62621 shown
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Customer Rating

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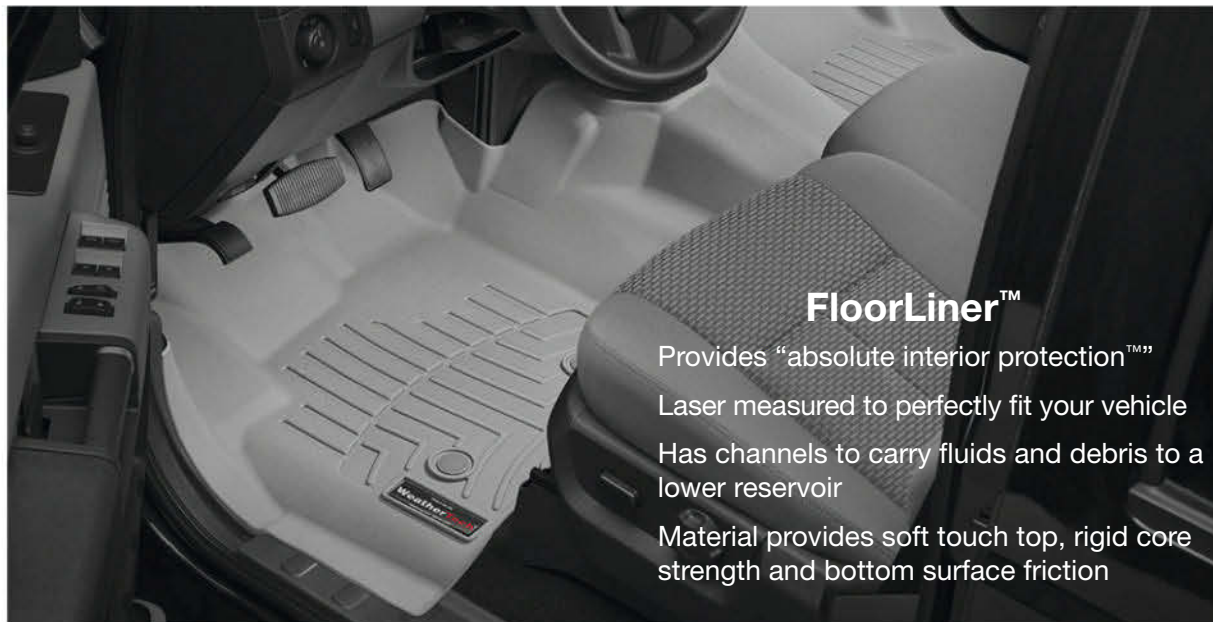
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PERFORMANCE-SUV EDITION

MOTOWN MILE

BEST LAP WINS AT OUR SIGNATURE AIRPORT TRACK.



The BMW X5 M and Range Rover Sport SVR are similar machines: European luxury SUVs with all-wheel drive and blown V-8s. Yet they are different animals. The X5 M is essentially a tall M5, happiest on a racetrack. The SVR is still a Landie. It dreams of picking its way along hilly two-tracks and clambering over fallen tree trunks—although this dream has an F-type soundtrack. Which approach yields faster laps is clear. It's harder to decide which is more entertaining.



2015 BMW X5 M

A ruthless and effective performer. One differential can send twin-turbo V-8 thrust to either axle, and the other sends torque side-to-side at the rear. The result: devastating power on demand and shockingly quick laps for a 5305-pound SUV. The X5 M feels crisp, if heavy and clinical. Four-wheel drifts sure are fun.

2015 RANGE ROVER SPORT SVR

With a plush suspension and a high center of gravity, the SVR is a handful on track. The rear end hops across apexes, and every direction change is as violent as a roller-coaster ride. It's not that fast, but you feel like you're breaking the sound barrier.



SECTION 1

THE KINK INTO COYOTE CORNER

Both negotiate the kink with ease. The SVR leans more but otherwise matches the BMW's poise. Jump on the brakes, though, and the dive unsettles the rear.

128.7 MPH

123.1 MPH

PEAK LATERAL ACCELERATION

Both wear Michelin tires, but BMW's rubber choice is more track-focused than the Rover's compound.

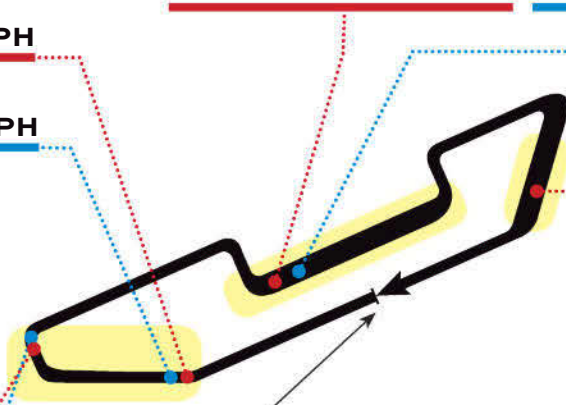
1.14 G
0.90 G

SECTION 2

THE CHICANES

Each one weighs more than two and a half tons, but the X5 M controls transitional motions far better.

12.03 SEC **13.01 SEC**



SECTION 3

RAGGED RIDGE

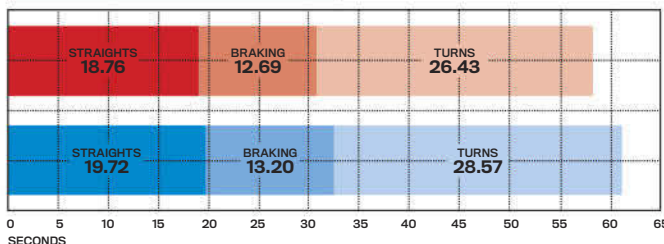
Both SUVs soak up bumps and humps easily, but the X5 M holds more speed at the apex and can throttle away sooner.

THE FINISH LINE

441 FEET

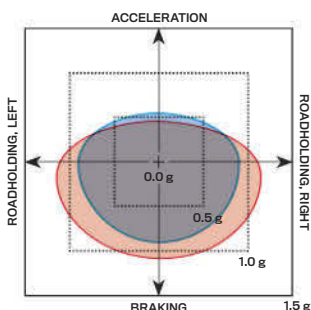
The X5 M crossed the line 441 feet ahead of the SVR. If the Motown Mile were covered in logs and rocks, that would probably reverse.

LAP-TIME BREAKDOWN



57.88 SEC **61.49 SEC**

The X5 M is quicker than a Porsche Cayenne Turbo S around the Mile, making it the top SUV here. The SVR wins our hearts with its boisterous, booming V-8 and exaggerated antics.

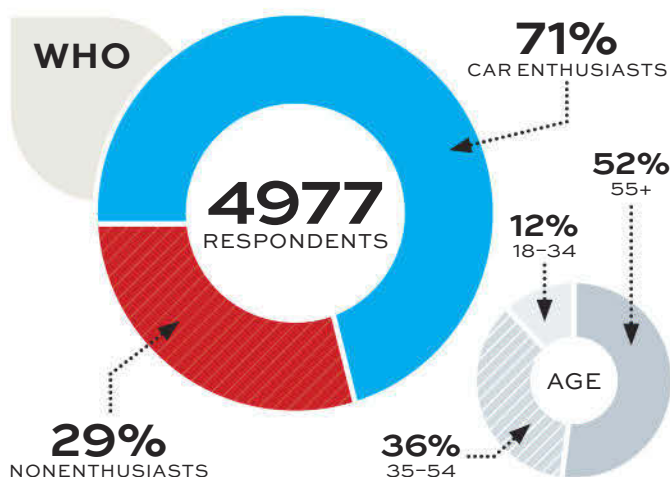


THE LEADERBOARD

- 1 2014 Ferrari 458 Speciale **51.92 sec**
- 2 2015 Nissan GT-R Nismo **51.93**
- 3 2014 Porsche 911 GT3 **52.18**
- 4 2015 Dodge Viper SRT TA **52.36**
- 5 2013 Ferrari F12berlinetta **52.97**
- 6 2014 Porsche 911 Turbo S **53.02**
- 7 2014 Mercedes SLS AMG Black **53.66**
- 8 2014 Nissan GT-R Track Edition **53.76**
- 9 2013 SRT Viper **54.55**
- 10 2014 Chevrolet Camaro Z/28 **54.66**
- 11 2014 Chevrolet Corvette Z51 **54.80**
- 12 2013 Porsche 911 Carrera S **55.03**
- 13 2014 Audi R8 V10 Plus **55.18**
- 14 2012 Lexus LFA **55.48**
- 15 2015 BMW M3 **55.53**
- 16 2015 Jaguar F-type V8 S **55.84**
- 17 2013 Chevrolet Camaro ZL1 **55.86**
- 33 2015 BMW X5 M **57.88**
- 35 2014 Porsche Cayenne Turbo S **58.10**
- 46 2015 Range Rover Sport SVR **61.49**

SURVEY SAYS!

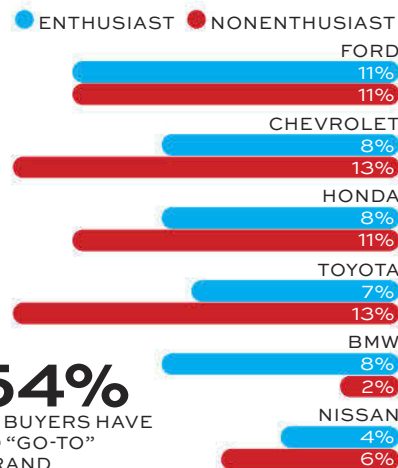
ENTHUSIASTS SHOP DIFFERENTLY.



WHAT

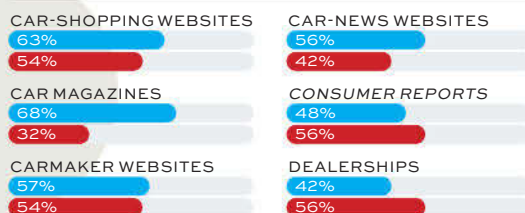
MOST RECENT CAR PURCHASE

76%
OF BUYERS BOUGHT THE CAR AT THE TOP OF THEIR CONSIDERATION LIST

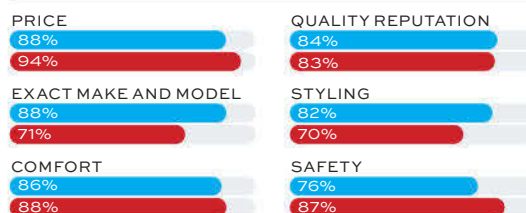


HOW

INFORMATION SOURCES:



PURCHASE PRIORITIES:



TRADED IN OLD CAR



LAWYERS NEVER ASK QUESTIONS without knowing the answers. We as journalists subscribe to the opposite view, but conducting a reader survey falls in between. With this one, we sought to tease out some numbers regarding car buying. Here's one: 80 percent of respondents were "very satisfied" or "extremely satisfied" with their dealership experience. If that contradicts conventional wisdom, it does explain why 68 percent of respondents would not buy or lease a vehicle without visiting a dealership and 84 percent would not buy or lease without a test drive. Indeed, if the bricks-and-mortar dealership system is going to be overthrown, our survey indicates that Silicon Valley might ally with car enthusiasts. While only 34 percent of nonenthusiasts said they would purchase a car over the Internet, 54 percent of enthusiasts would be inclined to do so. We've highlighted more of these "significant statistical differences" (as our research department calls them) between enthusiasts and nonenthusiasts in the accompanying graphics.

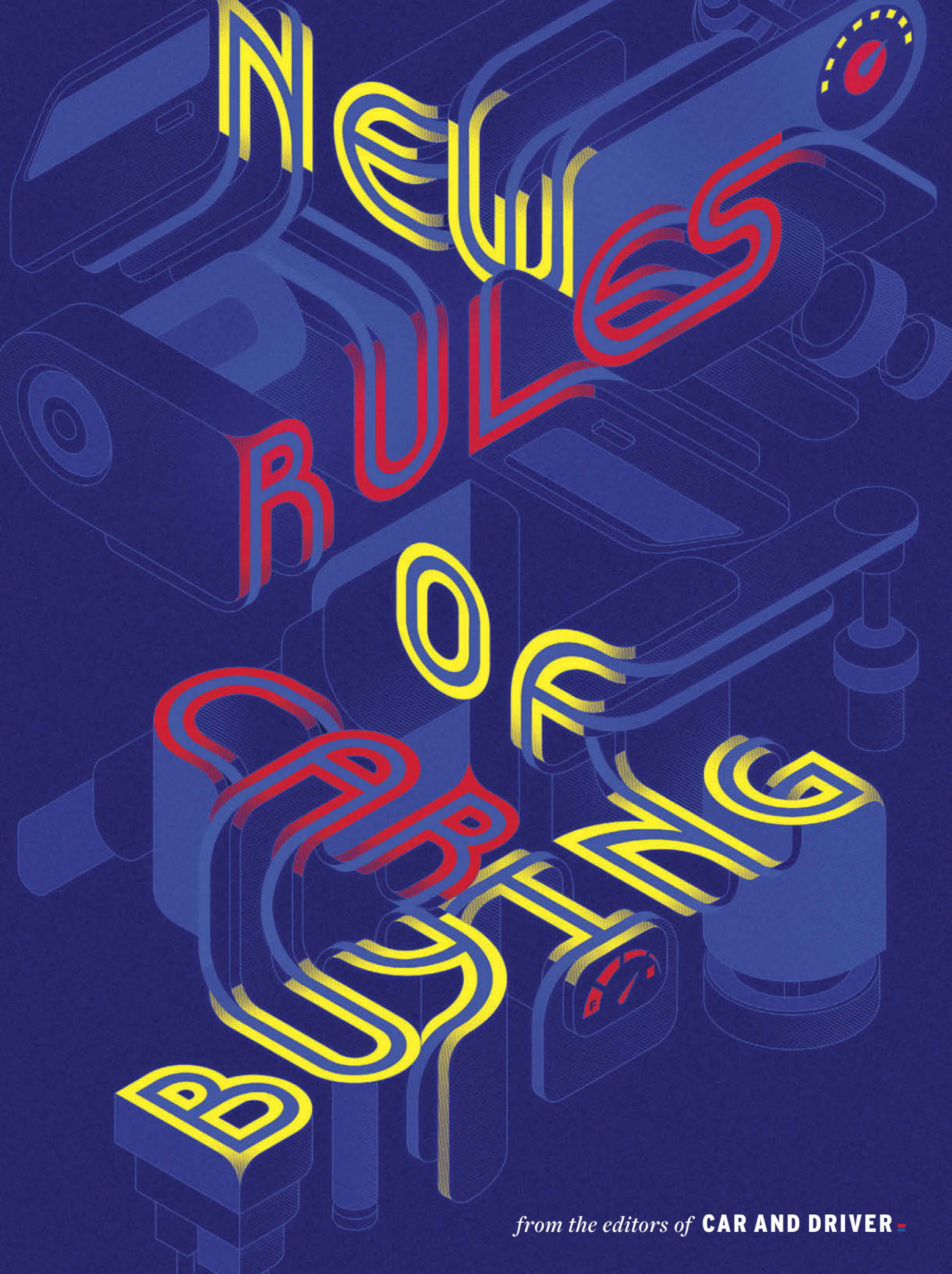
THE DIGITAL GENERATION is expected to influence every aspect of the car business, but it's a process that still seems nascent. Predictably, our survey shows that car buyers aged 18 to 34 are

more likely to have recently purchased their first car than other age groups and are more likely to buy used. And young buyers are more inclined to go shopping in search of a safer car or because of a lifestyle change. Which is what kids have been doing forever—replacing a junker shortly after landing a decent-paying job.

Younger men are more likely than others to sell their old car online, probably a byproduct of more young buyers being dissatisfied with trade-in offers than other age groups. Despite the stereotype of youthful impatience, men aged 18 to 34 are more likely than others to take more than a year researching their purchase. And yet, younger buyers are more likely than older ones to make taking delivery of a new car their only trip to a dealer.

It follows that young people are the most likely to use mobile devices for research, prioritizing up-to-date dealer inventories and vehicle-history reports. But younger buyers are also more interested in test drives than other age groups. Indeed, younger buyers can be shockingly conventional. When asked if they would purchase a new car over the Internet, 56 percent were disinclined to do so, matching the number of respondents over 55 who reject what is expected to someday be the holy grail of car commerce.

—JEFF SABATINI



from the editors of **CAR AND DRIVER**

NEW RULES



of CAR BUYING

There are few truly bad vehicles for sale today, but, when there are more models boasting more whistles and bells than ever before, that doesn't make car shopping easy. Even if you're car savvy, you can still make an uninformed choice or get a bad deal. And the wealth of resources for information can obscure the fact that many of the rules of the game have changed. But fear not: We can help. We've spent months researching the changing auto-retail landscape and have collected the best advice here. As new ways of shopping supplant the old, those in the know can save time and money and get greater enjoyment out of their new car.

- starting line -

RESEARCH

OLD Spend a Saturday kicking tires on dealership row to decide what you want.

NEW Stay home, do your research online, and only visit dealerships for test drives.

ADVICE There are many ways to research new vehicles online, from magazine websites such as caranddriver.com to the automakers' own sites. The volume of information is staggering. Consume the info, take notes, make a spreadsheet if that's your thing—but do it before you head out to shop. When you reach the dealership, make the test drives count. A quick spin down the street and back won't suffice. Don't be shy about putting a few miles on the car, getting it up to freeway speed, and driving it on familiar roads. If a salesman insists on accompanying you, politely ask him to be quiet so you won't be distracted. Pay attention to details. You're going to spend thousands of miles in your new car, so those first few logged on a test drive are important.

- monthly nut -

BUDGET

OLD Stretch your budget to get a nicer car by leasing.

NEW Consider a lightly used car, especially a certified pre-owned (CPO) one.

ADVICE Leasing gets you into a nicer car than you probably thought you could afford, but it comes at a cost. You're not actually buying anything when you lease; you're paying the difference between the sale price and the car's forecasted end-of-lease residual value plus interest and fees. A wise

alternative is to buy a relatively new used car, letting the original buyer pay the initial chunk of depreciation, which is the biggest hit on a percentage basis.

The sweet spot tends to be a three-year-old car that's just been turned in from lease. You can get a car that's nearly identical to the current model year's, but at a price that's chopped roughly in half. CPO vehicles even come with extended warranties or service contracts for peace of mind.

AVERAGE NEW 2016-MODEL-YEAR VEHICLE MSRP

\$32,848

\$16,341

VALUE IN THREE YEARS

AVERAGE NEW 2016-MODEL-YEAR LUXURY-VEHICLE MSRP

\$56,386

\$29,159

VALUE IN THREE YEARS

Data provided by TrueCar

QUICK TIPS • **DO:** Ask friends and family for recommendations of good dealers and salespeople. • **DON'T:** Let a small difference in price sway you into buying a car you don't really want or from people you don't really like.



2016

Corolla S

Clutch in. Boredom out. It's time to put the fun back into driving. The 2016 Corolla brings even more excitement to your drive, thanks to an available 6-speed manual transmission. Stir the driver in you.



- time to choose -

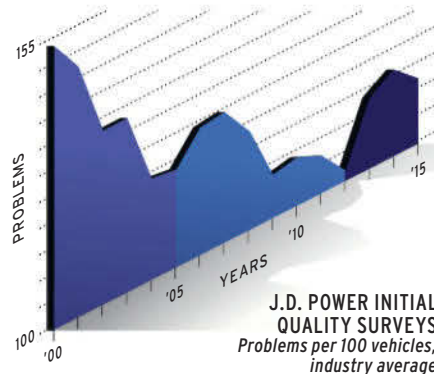
PERUSE

OLD Play it safe and only buy on a carmaker's quality reputation.

NEW Consider the flattening trend in new-car-quality surveys.

It may not be worth paying extra for a brand because it has the highest quality score.

ADVICE J.D. Power's quality awards and the surveys that create them are frequently used by automakers as advertising cudgels. But what those proud carmakers often don't mention is that quality is up across the industry. Yes, there are some brands that do spectacularly well and some that do quite poorly. In 2015, the worst brand in the J.D. Power Initial Quality Survey, Fiat, had more than twice as many problems per 100 vehicles as Porsche, the best brand. But only 12 problems separated the 6th through 15th brands, and those brands were still above the industry average of 112 problems. Remember, J.D. Power's quality surveys are like college-basketball polls: Don't trust them implicitly. They report owner dissatisfaction with features as quality problems. And they don't guarantee that a new car will be problem-free. So consider the quality scores, but don't write off the brands that are a few places off the pace, especially if you can get a good price on the car you like.



OLD Look for last year's model to get a killer deal.

NEW Wait for a redesigned model. The rapid pace of technology means it's likely to offer more features and better fuel economy.

ADVICE This is where doing your research pays off, as any deal on a leftover from last year needs to be weighed against other factors. The first is whether the discount is greater than the loss of value the car has already suffered while it was waiting for you to drive it home. When it comes time to trade it in or sell it, the car is still going to be that one-year-old model, which will make it worth less. The depreciation can be exacerbated if the automaker added new features after it built last year's version. This makes it important to know when the automaker is going to overhaul the model you're shopping for. Most vehicles have a life cycle of four to six years before they get substantially reengineered. Sometimes a mid-cycle refresh can bring updates even sooner, and these plans are often reported well in advance. Knowing there's an improvement coming soon will better inform your purchase.

OLD Buy a new car when your old one wears out.

NEW Start shopping before you need a new car to make a more informed decision and save money.

ADVICE For most people, cars are the second-largest purchase they'll ever make after their home, and similar care should be taken in the buying process. Not feeling pressured to close a deal means you can take advantage of opportunities that arise at the end of the month or the end of the quarter. That's when dealers can get desperate to move the metal, either to secure bonuses from the automaker for meeting sales goals or to avoid paying inventory costs. If you need to replace a car quickly, consider renting something for a week to give yourself time to research and shop. It will be money well spent if you get the right car at the right price. Buying the wrong vehicle and replacing it later will cost much more because of depreciation, taxes, and transaction costs. And the only other alternative is suffering for years with a car you don't like.

QUICK TIPS • DO: Spend enough time researching the car market, especially if it's been a while since you last shopped.
DON'T: Rely on old stereotypes. The auto industry has changed a lot, even in the past five years.

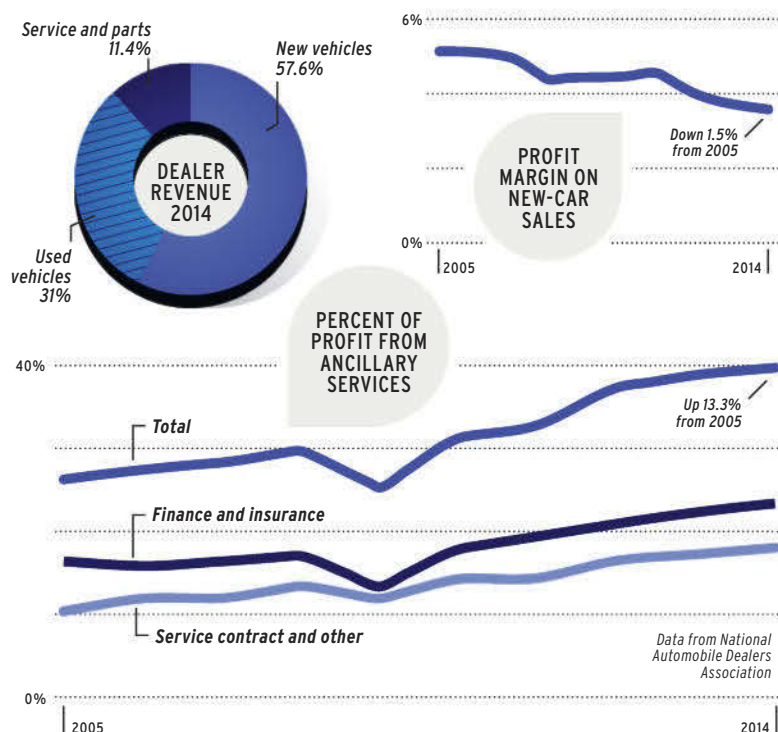
- don't hate -

NEGOTIATE

OLD Threaten to walk out if you don't get your way.

NEW **Get thrown out if you're unreasonable in your demands.**

ADVICE While you should always be prepared to leave the dealership if the deal is not right, remember the No. 1 rule of any car-buying negotiation: Don't be a jerk. You catch more flies with honey, and the store has to make some sort of profit or they aren't going to do the deal, no matter how many TrueCar printouts you wave at them. Understand that pricing transparency means many dealers earn less profit from selling new cars than they previously did. When you come armed with the invoice price and refuse to budge, the dealer will need to make his money on some other aspect of the sale, such as financing or your trade-in.



OLD Suffer through hours of dickering to get that last \$100 discount and free undercoating.

NEW **Be straight with your salesperson about what you want and how much you're willing to spend.**

ADVICE Come to buy armed with knowledge about options and equipment and how much other dealers are selling your car for. If you know what you want and what it's worth, you won't be forced to waste time as the dealership tries to sell you a car with option packages you don't need. Make sure when it comes time to take delivery of your new car that you have all your paperwork in order. The salesperson probably gave you a checklist: proof of insurance, cashier's check, identification, or whatever the state in which you are buying the car requires.



*AutoTrader.com study

- say buh-bye -

TRADE IN

OLD Make your deal on the car, then spring your trade-in on the salesperson.

NEW **Get a trade-in offer first, or better yet, sell your car yourself.**

ADVICE A good salesperson is going to ask about your trade-in the minute you show interest in a new car. Not just because she has to factor it into

the deal, but because dealers want to take good cars in trade; trade-ins fuel the profitable used-car side of the dealership. Dissembling about your trade can blow up the deal, and deception is never the best path to getting a reasonable offer. If you want maximum value for your old car, sell it yourself or take advantage of a service that will do that for you. If you prefer the convenience of trading in your car, letting the salesperson make an upfront offer means she's in the position of having to make her best offer to try to secure your business.

QUICK TIPS • **DO:** Negotiate the price of the car, not the payment. • **DON'T:** Overspend. Include everything when estimating your car budget: payment, insurance, gasoline, and a small amount set aside every month for repairs.



“Question anything that doesn’t seem right.”

- find a source -

FINANCE

OLD Cash is king. Offer to pay cash to get a better deal.

NEW Arrange your financing through the dealership.

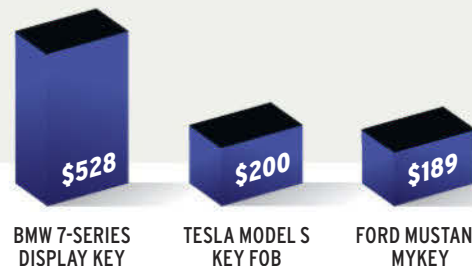
ADVICE The dealer can often get you financing as good or better than your local credit union or bank can, with the dealer still making something off the markup, or “reserve,” on the interest rate. If the dealer can earn a profit on that end of the deal, you may be able to negotiate a lower price on the car. That said, it doesn’t hurt to know what rate your local lender can offer you before heading to the dealership. As interest rates partly depend on your credit history, take advantage of services that supply, at no cost, your FICO score (a common credit rating) and put your financial house in order before applying for a loan.

OLD Refuse anything the finance-and-insurance person offers, even a glass of water.

NEW Listen to what he or she is selling. Some types of optional warranty coverage make sense.

ADVICE Before you pass on tire, wheel, and key coverage, consider that replacement keys can cost hundreds of dollars. If you’re prone to losing them, find out what a new key for your car costs. With today’s do-it-all remote proxy keys, it might be a lot more than you think. Other service contracts are less attractive, and if you decide you want to purchase one, you can do so later, after you have the car. You should still be wary of extras, so make sure you fully understand every line of your sales contract. Question anything that doesn’t seem right, and be prepared to negotiate on extra charges such as “documentation.” Documentation fees are a common way for dealerships to pad profit, but they can vary widely from store to store. Under no circumstances should you sign any document that you haven’t read closely.

COST OF REPLACEMENT KEYS



- CYA -

INSURE

OLD Call your insurance agent the morning you go to pick up your new car to have your policy transferred.

NEW Get insurance quotes upfront, before you make any deal at the dealership.

ADVICE Note that we wrote quotes, plural. Not all insurers use the same standards for evaluating risk and setting rates, even when it comes to how long they hold tickets and accidents against you in assessing surcharges. Sadly, the best way to save on auto insurance is to switch providers, so call around. Or use thezebra.com to gather multiple quotes without revealing all your personal details.

QUICK TIPS • DO: Contact dealers via email. It’s more efficient and creates a record of the negotiations.
DON’T: Buy a car just because it wins awards. You have to drive it, probably for a long time. Make sure you love it.

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Let's
Go
Places

Prototype shown with options. Production model may vary. 1. 2016 EPA-estimated 34 city/33 combined mpg for RAV4 Hybrid, AWD-i models only. Actual mileage will vary. 2. When compared to 2016 RAV4 gas models. ©2015 Toyota Motor Sales, U.S.A., Inc.

THE ALL-NEW TACOMA



**Let's
Go
Places**

SOME SEE AN OBSTACLE. OTHERS SEE A WEEKEND.

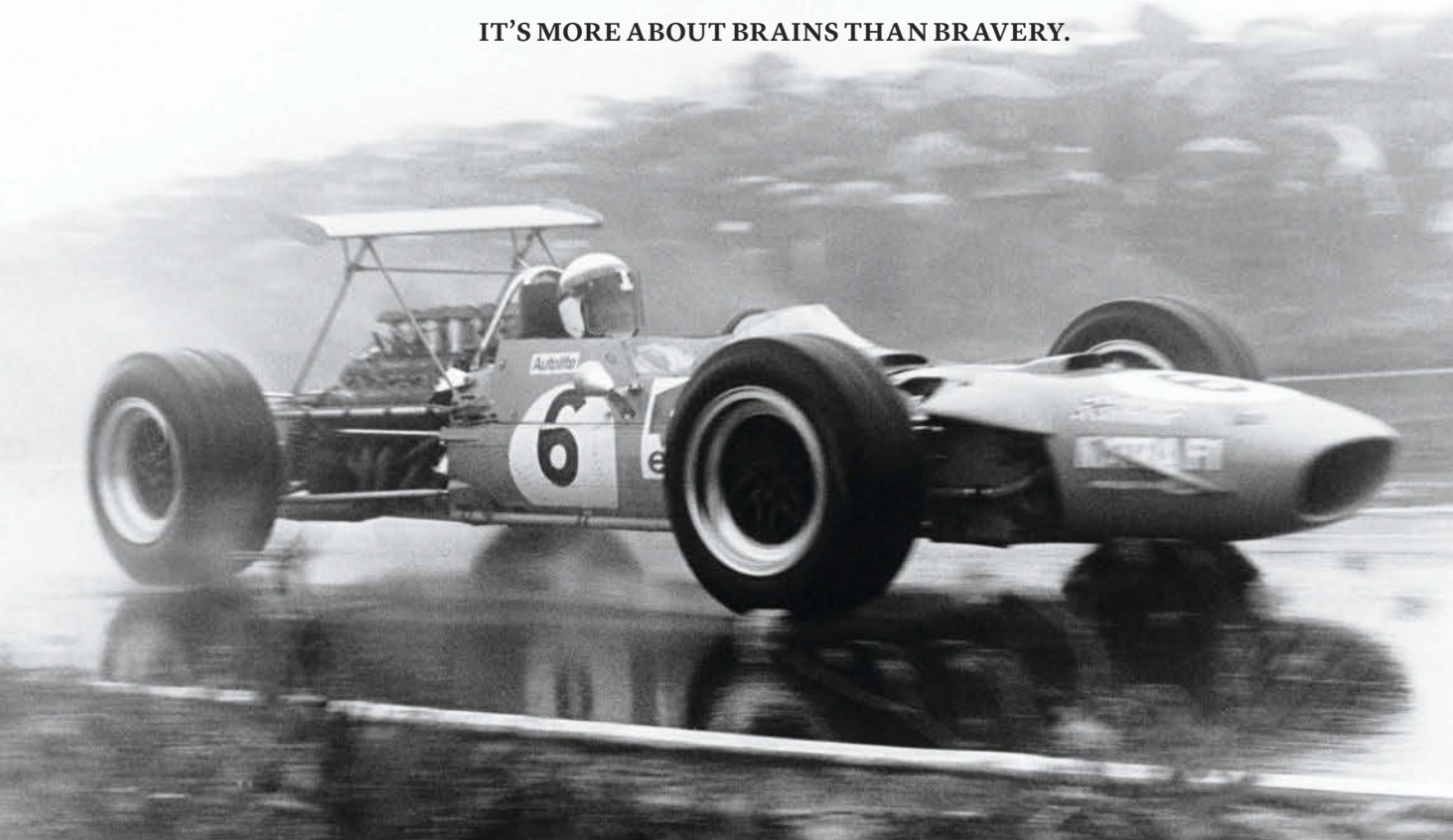
The all-new 2016 Tacoma elevates your epic adventures, thanks to first-in-class off-road technology. The Multi-terrain Select system in the TRD Off-Road features five driver-selected modes that help you take on tough terrain such as loose rock, mud or sand. The system regulates wheelspin by adjusting throttle and brake pressure to provide maximum traction and maximum fun. About the only thing Tacoma can't help you select is the best way to get back down.

Prototype shown with options. Production model may vary. ©2015 Toyota Motor Sales, U.S.A., Inc.

DRIVER'S ED

RACING IN THE RAIN

IT'S MORE ABOUT BRAINS THAN BRAVERY.



There's nothing more inspiring than a fearless lap in the driving rain. James Hunt at Fuji, Ayrton Senna at Donington Park, Sebastian Vettel at Monza.

What about when it's you at your local track? Will you have the courage and skill?

"It's nothing to be scared of, driving in the wet," says Sir Jackie Stewart, who won the waterlogged 1968 German Grand Prix in a Matra-Ford (above). He's one of the fastest drivers in history, particularly quick when it's raining. His first word of advice, though, is to slow down.

"There's no point in thinking you can handle it or that you're going to go out there and have big balls," says Stewart.

Regardless of whether you're on the Nürburgring or a rinky-dink circuit where you've logged hundreds of laps, rain calls for throttling back and observing what's changed. The notion of an ideal rain line, where you automatically shift to the outside of a corner, is a myth. Sometimes you will want to take the outside to avoid slippery deposits of oil and rubber. But other times, it'll be faster to dive into the apex, just like in the dry. Corner exit may be different, too, as you don't want to track out to wet curbing. Is there a freshly paved section? It could be slick. Finally, be on the lookout for backed-up drains where the car could hydroplane—that's what caused Stewart to flip his BRM at the 1966 Belgian Grand Prix. Every track and every

weather event is different, so the observation lap is critical. "You can see a lot if you go slowly. . . . You've got to consume that information," says Stewart.

Your car, too, may require familiarization. How do your tires feel? Extreme-performance summer tires or R-compounds that were fused with blacktop a minute ago may now have little to no grip. If the car has stability or traction control, that may need to be in a different mode or turned off altogether, lest it intervene every time you get on the gas. And don't forget about your windshield wipers. "If you're conscientious, before you've gone out, you've cleaned your wiper blades and made sure there's no oil or dirt on the glass itself," Sir Jackie adds.

As you build back speed, be gentle and deliberate. Now is not the time for fancy trail braking. "When it's raining, get your braking done in a straight line, so your whole attention's given to steering and getting around that corner." Above all, avoid unnecessary roughness. "You've got to be more sensitive in every respect," says Stewart, "whether it's standing on the gas pedal, standing on the brake pedal, or it's the steering and input."

Mind you, this isn't bad advice for any weather. "People who are really good in the wet are typically pretty good in the dry as well," notes Stewart. "[Rain] definitely improves your sensations and sensitivity."

—DAVID ZENLEA

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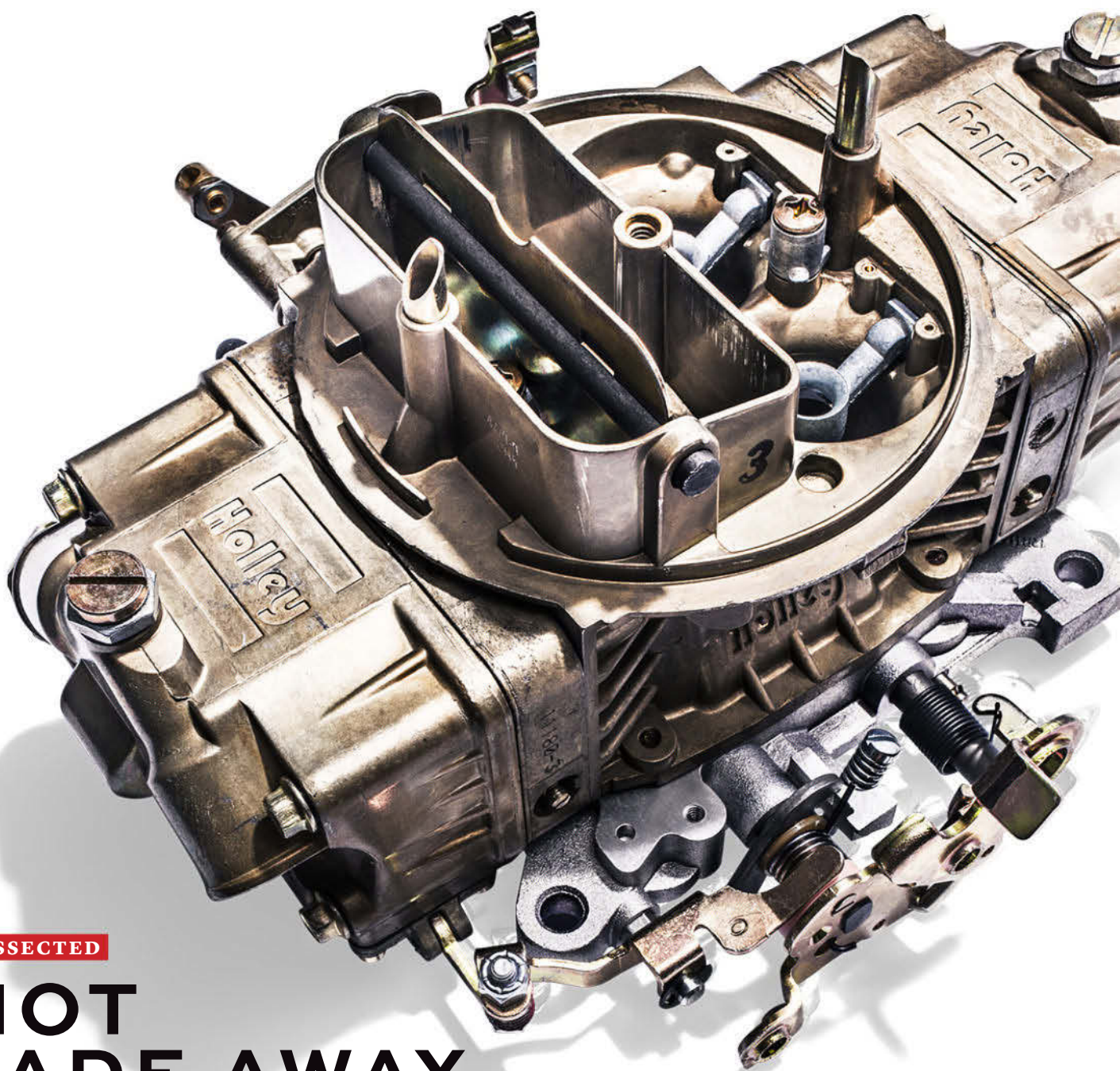


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Make no mistake: When the fully autonomous car becomes a reality, it will be the death of the automobile industry as we know it. I'm sorry, but that's inevitable.



Right now, we're enjoying the autonomous features increasingly prevalent in conventional cars. But when we really get to the point where we have individually programmable but standardized transportation modules moving on the freeway with a whole snake of vehicles at 150 mph, brands will no longer matter. What is the reason for being in a BMW module or a Mercedes module? Especially since you get a different one every time you dial it up on your device? For automakers, that's the scary part.

If the federal government leaves room for differentiation and people still choose to own these things, as opposed to calling them when they need them, then it's possible some marques will survive. But in urban centers, I don't think many people will want to own. If you look at the congestion around major cities, you see that car ownership just doesn't work anymore. We can't keep adding lanes. We see, basically, this model in the form of Uber. Uber is simply autonomous vehicles with a driver.

Thirty years ago, I honestly thought the feds would regulate the auto industry into total blandness. But I didn't have the same sense of inevitability that I do with this autonomous thing, because, back then, human ingenuity was still in charge. It was still up to the leaders of the automobile industry to

provide a more attractive car than the competition, whatever the scenario. But in a situation where the brand motive for purchase goes away and the perceived performance motive goes away? Boy, that's a tough one.

The automobile will remain a gigantic industry, now as a sports instrument or as a vehicle for enjoyment. Consider the horse. With the advent of the car, horses were essentially banned from streets. But they made a very nice comeback on private property. Dude ranches, farms, riding stables, racing. I think the same thing can and will happen to the automobile. Independent driving will become the equivalent of going to an upmarket horse event on a weekend. At places like Monticello Motor Club in New York and Autobahn Country Club near Chicago, you can enjoy your car.

I don't see all this happening in the near term, because the fully autonomous model is going to require massive government investment and oversight. Once we get past piston-engine-powered cars and into battery-powered modules, we're going to need some form of inductive charging on the freeways, so that the vehicles charge themselves or at least maintain the charge and only use the battery for the last five miles. And just like the FAA mandates that every airplane have a transponder, the feds are going to have to mandate that every car have one.

That whole system, I'm convinced, is 30 years away. Probably the biggest chance we have of this not happening is a lack of sufficient prosperity to bring it about. Which is an alternative none of us likes. ■

Bob Lutz has been The Man at several car companies, so your problems are cake. Bring 'em on.

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Can you spot the difference?*



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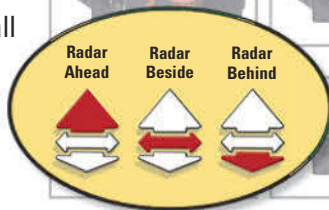


► **Front and rear laser-warning added; requires taller case.**

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IT DOESN'T HAVE AN INSIDE VOICE



THE FIRST-EVER LEXUS GSF

There's a time and a place to dial it back. This is neither. The new GSF boasts a race-inspired 467-horsepower¹ V8 engine and a throaty exhaust note that's impossible to ignore. Add in a Torque Vectoring Differential, plus six-piston Brembo[®] front brakes² and it makes more than a powerful statement: It makes the 2016 Lexus GSF as capable in overall handling as the 2016 BMW M5.³



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1. Ratings achieved using the required premium unleaded gasoline with an octane rating of 91 or higher. If premium fuel is not used, performance will decrease. 2. High-performance brakes may require additional maintenance and be louder than conventional brakes, depending on driving conditions. See the *Warranty and Services Guide* for more information. 3. AMCI Testing Certified: 2016 Lexus GSF versus the 2016 BMW M5 with optional 20-inch wheels with ESC off. ©2015 Lexus